DOCUMENT RESUME

ED 162 611 IR 006 133

TITLE Educational Telecommunications for Alaska.
INSTITUTION Alaska State Dept. of Education, Juneau. Office of Planning and Research.
PUB DATE Jan 77
NOTE 176p.; Appendices B 3-C 4 omitted because of marginal legibility of the original; For related document, see IR 006 132

EDRS PRICE MF-$0.83 HC-$10.03 Plus Postage.
DESCRIPTORS Communication Satellites; Computer Assisted Instruction; Data Processing; Educational Alternatives; *Educational Programs; Information Systems; *Instructional Improvement; Interaction; Intercommunication; *Rural Education; *Telecommunication; Validated Programs; Video Equipment
IDENTIFIERS *Alaska

ABSTRACT

This telecommunications program planned and initiated by the Alaska Department of Education is designed to (1) provide basic communication capability to the state's 52 school district headquarters, (2) examine and report the results of making research and instructional information collections which exist outside Alaska available to educational practitioners in the state, (3) implement and evaluate the use of a semi-automated system of student diagnosis and academic recordkeeping, and (4) design and use practical rural secondary school curriculum and instruction, utilizing modern telecommunications to mediate instruction in small, isolated schools in rural Alaska. The project makes use of a phased design, field test, evaluation, as an implementation protocol for staging the four major thrusts of its programs. Recognized and appropriate methods of client participation are employed in the design of program strategies and their implementation and evaluation, as well as their adoption. (Author/JEG)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED162611

EDUCATIONAL TELECOMMUNICATIONS

FOR

ALASKA

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

N. Cole

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

by the Office of Planning and Research
Alaska Department of Education
Pouch F, State Office Building
Juneau, Alaska 99811

January 1977

IR006133

ABSTRACT

This four and one-half year telecommunications program, planned and initiated by the Alaska Department of Education, is designed to accomplish four purposes:

- to provide basic communication capability to the state's 52 school district headquarters,
- to examine and report the results of making research and instructional information collections which exist outside Alaska available to the state's educational practitioners,
- to implement and evaluate the use of a semi-automated system of student diagnosis and academic recordkeeping, and
- to design and use practical rural secondary school curriculum and instruction, using modern telecommunications to mediate instruction in the necessarily existent one, two and three teacher isolated schools in rural Alaska.

The modern communications devices and instructional media to be used are:

- a computer managed mail drop system using a combination terrestrial and celestial link from the University of Alaska's Computer Center, via RCA's SatCom F2 or equivalent spacecraft, to Alaska's fifty two school administrative offices employing both CRT and facsimile transmissions to receiving schools,
- acoustic and digital interface with San Mateo County, California's Educational Resource Center equipment and subsequent delivery of this information via a combination land line and celestial link at 4/6 GH_z via a switching center in Anchorage,
- a computer managed system which modernizes the state's student diagnostic and record-keeping system using RCA's SatCom F2 space segment or equivalent, and
- a combination of responsive CIA, CMI and local looped pre-designed programming and computer and audio tele-conferencing to aid rural secondary school instruction and provide selected teacher inservice opportunity to the students and staffs of the remote, newly created, village schools in the state.

All long-line traffic will be handled by Alaska's only long-line carrier, RCA Alascom. Operational demand requirements are for fail-safe 9600 band lines and protected voltage line-drop features in the rural areas.

Participation of the fifty two school districts and regional and state educational agencies includes cost sharing of toll fees of locally initiated message delivery, with a phase out of federal support by the conclusion of the project's four and one-half year period.

Design of the educational system has been directed by the Alaska Department of Education's Division of Planning and Research with the technical support of the Educational Services Division, Northwest Regional Educational Laboratory. Engineering design assistance will be continued by Alaska's Office of Telecommunications, Office of the Governor.

Program management and account control, programming/instructional design, field services and utilization/training and formative evaluation will be accomplished by a unique contract arrangement over which the Alaska State Board of Education, through the State Department of Education, exercises control. The four and one-half year project employs a phased design, field test, evaluation, implementation protocol for staging the four major thrusts of its programs and employs recognized and appropriate methods of client participation in the design of program strategies, their implementation and evaluation and, further in their adaptation and adoption in Alaska's continuing state-wide telecommunications effort.

TABLE OF CONTENTS

		Page
Abstract		iii
I.	Background and Context	1
	A. Demographic Outline	1
	B. Geographic Outline	3
	C. Economic Outline	5
	D. Transportation	8
	E. Communications Context	11
	F. Educational Context	20
	G. Project Participants	29
II.	Needs Documentation	37
	A. Introduction	37
	B. Educational Needs	38
	C. Student Diagnosis and Instruction	42
	D. Telecommunications Alternatives Survey	46
III.	Project Mission, Strategy and Objectives	57
	A. Introduction	57
	B. Project Mission	57
	C. Project Strategy	57
	D. General and Specific Project Objectives	71
IV.	Procedures for Project Implementation	79
	A. Overview	79
	B. Level I Work Components	80
	C. Level II - Intensive Pilot for Expanded Utilization	91
	D. Management and Coordination	101
	E. Project Milestones	112
V.	Evaluation	115
	A. Formative Evaluation	115
	B. Summative Evaluation	122
Appendices		
	A.1 Population and Density	125
	A.2 Major Cultural Groups in Alaska	
	A.3 General Land Features of Alaska	
	A.4 Climate Zones in Alaska	
	A.5 Mileage	
	A.6 School Totals and Size Breakdowns 1975-76	
	A.7 Summary of Alaskan School Size	
	A.8 School Totals and Size Breakdowns 1975-76	
	A.9 Summary of All Schools 1975-76	
	A.10 Professional Personnel 1975-76	
	B.1 Results of Department of Education Planning and Evaluation Survey	
	B.2 Results of User Information Needs Survey	
	B.3 Educational Telecommunications Alternatives for Alaska	
	B.4 Telecommunications and the Future of Alaskan Education (Newspaper with Response Sheet)	
	C.1 Description of the University of Alaska Computer System	
	C.2 Explanation of Mail Drop System	
	C.3 Institutional Capabilities of NWREL	
	C.4 Vitae of Key Personnel	

I. BACKGROUND AND CONTEXT

A. DEMOGRAPHIC OUTLINE

Alaska remains the largest state with the fewest people (Appendix A.1). The population in 1975 was estimated to be 404,634, less than 0.5% of the national population. More than 280 communities are widely scattered over the state's 586,412 square miles, which comprises 16% of the total area of the United States.

The population density statewide is less than one person per square mile. Yet 60% of the population lives in or near three cities (Anchorage, Fairbanks and Juneau) that are within boroughs totaling only 2% of the state's total land. An adjusted density ratio indicates that outside of these three urban areas, the density approaches four square miles per person.

For the purposes of this study, the state has been regionally divided as shown in Figure 1.1. These regional identities take into account existing municipal and rural school district boundaries, geographic and cultural differences, as well as traditional and developing educational resource service areas.

The most populated region of the state is Southcentral, containing the largest community, Anchorage. Forty-four percent of all Alaskans live within the Anchorage Borough. The Interior region ranks second, with 85,068, or 21%. The population of this region is reduced to only 7% of the state's total when the second largest city, Fairbanks, is excluded.

The Aleutian Chain and Kodiak together contain 15% of the population. One-third of all Southeasterners (17,000) live in the state's

Figure 1.1

ARCTIC
3
NORTHWEST
5
INTERIOR
2
WESTERN
1
SOUTHCENTRAL
4
BRISTOL
BAY
6
SOUTHEAST
1
ALEUTIAN
CHAIN
KODIAK

third largest city, Juneau. The remaining 31% of the state's people live in 150 communities (ranging in size from 2 to over 5,000) distributed throughout Southeast, the Western coastal and Interior areas, and the Arctic North.

About one-sixth of the population is native Eskimo or Indian. The major cultural groups are identified in Appendix A.2. Inupiat Eskimo in the Arctic and Northwest; Yupik Eskimo in the Western and Bristol Bay regions; Aleuts in the Aleutian Chain and Kodiak; the Interior Athabascan Indians; and the Tlingits, Haidas, and Tsimshian Indians in the Southeast.

Alaska has six major languages other than English, with over fifty significantly different dialects.

Approximately one-third of Alaska's people were born in the state. The total population has grown 33.82% since the census count in 1970. It is estimated that 72% of this increase over the last two years was a direct result of interstate migration heavily related to pipeline and construction industry activity, above and beyond the natural population growth patterns.

Since total school enrollment in Alaska during 1975-76 increased only 18.5% over the 1969-70 enrollment, it can be confirmed that the population growth in the last five years due to pipeline activity has not imposed an impact burden on the vast majority of schools in the state.

B. GEOGRAPHIC OUTLINE

Forty percent of all Alaskans, and 60% of all schools, are located in communities of less than 1,000 people. Isolation is often a fact

of life, not infrequently by choice. But the major contributing factors are the variables of geography, weather and the distances between these communities: variables that create some consistent problems in providing educational services and support.

Alaska's terrain, essentially an extension of North America's major mountain ranges and plains, can be visually dazzling and pose formidable barriers (Appendix A.3).

The fjords of Southeast, and the Alaska Range in Southcentral are continuations of the coastal ranges in the northwest U.S. The broad valleys and basins of the Interior are an extension of the desert plains between the Rockies and coastal mountains. The Rockies extend into the Brooks Range in Northern Alaska. The Arctic coastal plain north of the Brooks is flat tundra, with thousands of shallow lakes.

The state's mountains contain half the world's glaciers, and 19 peaks over 14,000 feet. One-third of the state is north of the Arctic Circle. Throughout Alaska there are over three million lakes larger than 20 acres, and ten rivers over 300 miles long.

The climates this topography imposes create diverse environments (Appendix A.4). Fierce, dark, long winters can turn to 24-hour, 70 degree summer sun in the Arctic. The 2,000 mile Aleutian Chain is wet, foggy, cold, and frequently windy, year-round. Temperatures in the Interior region vary extremely from winter to summer (-50^{o} to $+90^{o}$) with low humidity. The most temperate region is Southeast, where the warming Japanese Current meets cool mountain air and results in over 200 inches of precipitation a year in some areas.

Distances in Alaska are vaster than a single map implies (Appendix A.5). From its west to east coasts, Alaska stretches the distance from

California to Florida. The northernmost community, Barrow, is 1500 miles from the southernmost city, Ketchikan: about the same distance from Boston to Miami. Barrow is as far from Fairbanks as Milwaukee is from Kansas City. Bethel is 400 miles west of Anchorage; San Francisco is 400 miles north of Los Angeles.

These vast distances can contribute substantially to a sense of isolation, remoteness. The extremes of winter weather limit activity, and contribute to Alaska's high alcoholism rate and its impact on daily life.

The effects of this isolation can be felt by Alaska's rural teachers, many of whom are not indigenous to Alaska. One teachers' group in a small, rural district negotiates into all contracts a yearly trip to Anchorage for an annual teachers' conference and considers the expense a just investment in mental health and needed professional contacts not available in the village.

C. ECONOMIC OUTLINE

1. Employment

The environment and the variables in resources and industry make employment highly seasonal in virtually every area of the state. Many major industries--construction, fishing, logging, tourism--are not active in the winter, when weather makes outdoor work and travel difficult, if not impossible. Depending on the time of year, region and industry, unemployment rates fluctuate between 5% and 13%. Both state and federal unemployment insurance payments for December, January, February and March are double, even triple, the claims paid in June, July and August.

In 1975, the average monthly wage was $1629. The Northwest and Western regions fell considerably below the average, the Interior region well above. While salaries in some areas can be high, costs of goods and services in all areas can be even higher.

2. Cost of Goods & Services

For example, the average retail cost of food varies greatly in the state. In June, 1976, one-half gallon of fresh milk cost $1.21 in Juneau, and $2.54 in Bethel. All regions of the state have higher prices than Seattle, Washington:

June 1976	Average Retail Food Prices % of Seattle
Southcentral	136
Anchorage	122
Western	190
Northwest	194
Interior (Fairbanks)	131
Southeast	121

3. Subsistence Living & Cash Economy

Many isolated, rural areas, with incomes well below poverty level, still rely to some extent on subsistence hunting and fishing. While health, education and other services are more readily available in the larger native villages, subsistence hunters must compete for fewer available resources.

". . .In recent years it has become apparent that all rural Alaska villagers are in an economic trap because of the transition from subsistence to cash. They are unable to return to a complete subsistence life, nor are they able to earn enough cash to buy food, supplies and services required to live comfortably in the larger communities.

"Despite this, subsistence hunting, fishing and gathering still play a crticial part in the lives of rural villagers. Of roughly 150

6

Native villages of less than 300 people, subsistence activity is estimated to provide at least half of the daily caloric intake. . .

"Temporary, seasonal employment may be available to provide some income, but also takes men away from the villages at times when subsistence foods can be most easily obtained. . . The available cash usually goes for materials and equipment that are vital necessities today in subsistence activities: rifles and ammunition, snow machines and outboard engines and gasoline. . .

"As subsistence life becomes more expensive and difficult, people must increasingly depend on store-bought groceries and goods. Young people returning to the villages from boarding schools who haven't learned the old subsistence skills must live more and more in the cash economy."[1]

The very establishment of schools in some areas of the state was a major contributor to the growth of larger, stable, primarily native communities. The highly nomadic Eskimos in the Brooks Range established the permanent village of Anaktuvuk Pass because of the requirement that the children attend school nine months of the year. The establishment of more permanent residences generated the need for services peculiar to community living.

As an example, electrical power became a necessity for the village resident. Virtually all schools in the state have electricity, supplied either by local utilities, school or federally-owned generators, or the Alaskan Village Electric Co-op (AVEC). In some villages the construction of even a one- or two-room school, whether by the state or the Bureau of Indian Affairs (BIA), introduced the first generator.

---

[1] "2(c) Report: Federal Programs and Alaska Natives"

The schools' need for power was a factor in the establishment of AVEC in 1967, and village schools were the largest single electrical user. Since then, new housing projects and purchase of appliances has increased residential demand for power.

The 23 schools using AVEC power now (with nine rural high schools under construction), pay a flat monthly rate of $2,835, plus an additional surcharge on the cost of obtaining fuel at each location. The schools used 35% of the total kilowatts generated by AVEC in 1975-76, and provided 54% of the total revenue.

In effect, school use of electricity has initiated and subsidized residential use. Especially in winter, this relatively new dependency on electricity becomes crucial. In Bethel in December 1975, fire destroyed the locally-owned generator and the city froze. Full repair of the resulting damage to the school alone is estimated to cost $230,000.

D. TRANSPORTATION

Costs of not only power and fuel, but all other goods and services, are high not only because of the limited market, but also because of transportation costs. Whether by road, water, rail or air, the cost of both travel and freight delivery is high.

1. Highways

In 1970, Alaska had 7,000 miles of road, only 3,000 of which were paved. There has since been no significant increase in roads further opening the land or linking communities. Vast areas of land in Alaska are not accessible by road:

State	Acres of Land per Mile of Road
Alaska	52,212
Arizona	2,203
Montana	1,295
Wyoming	891
California	842

Alaska may well have more communities and schools not on any road system than the rest of the states combined. The primary road network links Anchorage, Fairbanks and Haines, with connections to the Kenai Peninsula, Valdez, and many of the smaller communities in between. But this land link is lost for many in the winter, especially in the Interior, when many of the arterial roads are not maintained. Over 150 rural schools are not on any connecting road system.

2. Railroads

Alaska's railroad network is even more limited. The 540-mile Alaska Railroad links Whittier, Anchorage and Fairbanks, and runs daily year-round. In Southeast Alaska, a 110-mile narrow gauge railroad links Skagway with Whitehorse, Yukon Territory, Canada.

3. Sea

Goods are delivered to Southeast, Southcentral and the Interior by a combination of sea, truck and rail. Commercial freighters and barges travel regularly between the lower 48, Anchorage, and some larger coastal communities.

The state operates and maintains a "marine highway" for both passengers and freight, with ferries traveling regularly among principal communities in Southeast, and among communities on Prince William Sound, Cook Inlet, and Kodiak Island.

Villages on larger rivers have occasional service by commercial freight boats, with an entire winter's supply of goods

(ordered six month previously) arriving in the fall. Because of the lack of docking facilities unloading is done almost totally by hand.

A BIA freighter makes annual trips to supply BIA schools in coastal villages in western and northern Alaska, carrying freight for villagers as well, and all goods are unloaded offshore by small shuttle boats. At Nome, the cost of lightering for commercial operators can add as much as 100% to the cost of getting freight from Seattle to offshore Nome.

4. Air

Travel by air in Alaska is disproportionately heavy; in many areas there is simply no other means of transportation. Alaska ranks first in the nation in number of private pilots and planes, and in passengers and cargo tonnage flown annually.

Anchorage and Fairbanks are served by several international carriers, and five carriers serve most regions of the state on a regularly scheduled basis. There are numerous smaller lines, serving virtually every community on a charter basis.

Freight is commonly delivered by air in the winter in the bush, since twin-engine planes have become more common and can use short, rough air strips. But the costs are high. In the Northwest region, the residents of Noatak pay 29¢ per pound for freight flown from Anchorage.

Air travel, the most widely available means of transportation, can be very expensive and even time-consuming. Airline schedules preclude same-day travel between Juneau and Nome, for example. The 1500-mile trip from Ketchikan to Barrow requires four stops and two changes of airlines, costs $210 and takes nine hours, provided no

connection is delayed. A comparable 1500-mile journey between Boston and Miami is non-stop, takes less than three hours, and costs $115 one-way.

The difficulties and cost of travel affect Alaskan educators almost daily. For example: Atka's representative on the new regional school district board was chosen to represent the board at a state-wide conference, to be held in Juneau in June, 1976. Atka was unable to receive a radio message, so a written message was delivered aboard a Navy tug which serves the island once a month. The school board member left on a tug for the 100-mile, six-hour trip to Adak, then chartered an eight-seat, twin-engine aircraft for the 600-mile flight from Adak to Cold Bay, at a cost of $2400. From Cold Bay, she then flew to Anchorage by commercial prop-jet, spent the night in Anchorage, and made connections with a commercial jet flight to Juneau the following morning. The 1760-mile trip to Juneau took 20 hours and cost $2600, one-way.

E. COMMUNICATIONS CONTEXT

The geographic barriers, environment and vast distances that contribute to isolation and high costs of goods and transportation, have also contributed to Alaska's lack of extensive communication networks, especially in the rural areas. Where services do exist, they are often vulnerable to the uncertainties of weather conditions.

1. Mail Service

Virtually every community with a stable, year-round population (and every community with a school) has a post office and mail service. In smaller communities, delivery may be only weekly, or even monthly, almost always by small plane or barge.

Mail service is currently the most relied upon means of communication among educators statewide. But weather is a major cause of unreliable bush service; if the river is freezing up, or a storm hits, the mail plane can't land. It is not uncommon for a rural administrator or teacher to receive a request for information or notice of a meeting requesting a response due two days before the notice was received and three weeks after the notice was mailed.

2. Telephones

The state's basic communications system was first developed by the U. S. Department of Defense, the FAA, and the U. S. Coast Guard, with civilian traffic carried on a "time available" basis. In 1971, the Radio Corporation of America (RCA) purchased the Department of Defense-operated Alaska Communication System (ACS), consisting of terrestrial links in the Interior and Southcentral regions. The subsidiary corporation, RCA Alaska Communications (RCA Alascom), was established as Alaska's commercial long-lines carrier. RCA Alascom also began leasing portions of the U. S. Air Force-operated White Alice Communications System (WACS), using the combination of microwave troposcatter, land line and marine cable links to provide long-line communication to some areas of the state not otherwise served.

As early as 1971, RCA proposed to construct and operate a series of communication satellites to serve the lower 48, and Alaska. In 1973, RCA Alascom provided the first interim satellite links with land lines and microwave circuits through leased channels on the Canadian satellite Anik II, with a transfer to Western Union's Westar II two years later.

Also in 1973, the Governor's Office of Telecommunications (GOT) was established by executive order, to provide impetus toward reaching the state's goal of ensuring commercial communications service to all Alaskan communities with more than 25 people.

While most populated areas of the state had telephone communication by a combination of services in 1974, 108 rural communities still did not. That year, RCA outlined a six-year plan to introduce a series of major and small earth stations in rural Alaska to provide voice communication to all communities, and eventually television.

Subsequent to meeting this goal of service, RCA began installation of VHF "bushphones" to many of the smaller communities, providing one voice circuit with varying degrees of reliability.

In 1975, over 70 communities, most with schools, still had no telephone communication. Most of these locations had to rely on HF radio transmission, when contact could be made, to reach the outside world.

RCA Alascom remains the state's only authorized long lines carrier. Seven major earth stations (operating on temporary authority with RCA's F-II satellite) and the White Alice System (fully leased by RCA Alascom) currently supply long-distance telephone service to over 130 communities.

Eighty of these communities, all with schools, are served by 22 local telephone franchises, two of which are public utilities. All of these local utilities purchase long-distance service from RCA Alascom, and provide service to over 50% of the state's population. Generally, most urban areas have a shortage of circuits to meet traffic demands, particularly in the western regions of the state.

In addition, over 80 communities currently depend on RCA-operated long-distance telephone or radio circuits (bushphones) providing one terrestrial toll circuit. Equipment failures combined with the problem of servicing the mountaintop repeaters create continual maintenance and operational problems with these terrestrial circuits.

From a program that began in 1975, 20 small earth stations have been constructed jointly by the state and RCA Alascom. These earth stations serve communities that have previously had no services. Twelve of these sites have public schools.

The stations initially provide two-channel units, one for public telephone and one for emergency/medical traffic. All are currently in operation through the F-II satellite.

The small earth station program is continuing, with 50 stations and three VHF spurs slated for completion by early 1977. Up to 50 more stations may be built in rural Alaska by the end of 1977.

The July, 1976 agreement between RCA Alascom and the U. S. Air Force calls for a three-year construction program to upgrade the obsolete and overworked White Alice terrestrial system with 21 major earth stations. These new facilities are being constructed at critical traffic service points, and will add urgently needed circuits in many rural areas.

With completion of the small earth station program in 1977, every community with a population of over 25 will have basic communication service. But in many rural villages this will not provide communication directly to the school since the one telephone provided might be located in the community center or local store.

Eighty communities with public schools are served by local utilities which could provide additional long-distance service to

the schools, provided RCA-supplied circuits are available. The expansion and replacement of the White Alice System will continue to increase RCA's needed toll circuits.

One-hundred and twelve communities with public schools and one existing long-distance circuit do not currently have capacity for additional dedicated circuits. In the forty-nine communities with public schools that will have small earth stations in operation by early 1977, a toll circuit dedicated to educational use would be possible with an upgrade in available channel units in each station. Sites for the final phase of earth station construction have not been finally selected, but are likely to be built in communities large enough to have schools.

In addition, the Bureau of Indian Affairs has formally requested RCA to install telephones in all BIA schools, at an affordable price.

3. Commercial and Public Radio

An estimated 95% of all Alaskans can receive at least one broadcasting radio station regularly. Ten stations broadcast out of Anchorage, four out of Fairbanks, three out of Juneau, with 16 others scattered from Barrow to Ketchikan. Of these broadcast stations, eight are publicly-owned, operating under the auspices of the Alaska Public Broadcasting Commission (APBC) within the Department of Education (DOE). These eight stations serve Barrow, Bethel, Dillingham, Fairbanks, Juneau, Ketchikan, Kodiak, and Kotzebue. In addition, public stations are in various stages of development for Anchorage, Petersburg and Wrangell.

The APBC has also begun work to establish a statewide public radio network, to interconnect all existing public stations in sharing local and national programming, legislative news, and other public affairs programming.

The Armed Forces Radio and Television Network (AFRTN) operates eight AM and two FM radio stations, with 22 repeater transmitters. This network is designed to serve military personnel serving one-year tours of duty at remote locations, but can be received in many non-military communities.

4. Commercial and Public TV

Some type of television service is available to about 90% of the state's population.

Alaska has seven commercial broadcast television stations, serving Anchorage, Fairbanks, Juneau, and Sitka, providing direct or translator reception to approximately 45 other communities. Some programming (particularly news and special sports events) is transmitted live (or same-day) via satellite to Anchorage, Fairbanks and Juneau. All other network programming is delayed at least one week.

Three public TV stations, under APBC, serve Anchorage, Bethel and Fairbanks. The Bethel station is currently expanding its extensive translator system (in conjunction with the local community college) to serve a large portion of the lower Yukon River area. The public radio station in Juneau is in the process of developing plans to operate the television production studio originally established by the Governor's Office of Telecommunications for use during the ATS-6 satellite demonstration. This facility will provide the first live coverage of the legislature in 1977, and will be available for other closed-circuit productions.

With the construction of receiving ground stations and a $75,000 state appropriation in 1976, all three public stations will eventually participate in the direct satellite delivery of PBS programming.

A one-year pilot demonstration project, with a state appropriation of $1.5 million, is scheduled to bring the first regular satellite-delivered television programming to 29 communities in Alaska, begun in November 1976.

A full transponder on RCA's F-II will be leased by the state, and will provide two channels of selected network programming to broadcast affiliates in Anchorage, Fairbanks, Juneau, Sitka and Bethel. Transmission will originate on the west coast, for taping and re-broadcast, or real-time broadcast. These urban broadcast stations have selected news and sports programming that is not now available on a timely basis.

Twenty-four small earth stations either in operation or planned for completion in early 1977, will be upgraded to receive one channel of video. Ten-watt mini-transmitters and receive-only channel units will provide each of the stations, selected on a regional basis, with five evening hours a day of entertainment network programming. Programs selected will be taped in Anchorage and rebroadcast to the bush sites. Sixteen of these sites have public schools.

Once final scheduling has been determined, unused transponder time will be made available for educational or other state agency program transmission, or other use in the public interest.

The AFRTN operates three broadcast outlets, in King Salmon, Tatalina and Galena, providing direct or translator reception to 15 communities.

In addition, 18 communities have cable television, offering programs taped in Seattle and circulated throughout the state in four separate distribution loops. Programs are delayed from one to

five weeks, and the cost of cable service ranges from $20 to $40 per month. The cable station in Juneau is currently planning to provide residents with two additional channels through Home Box Office, Inc., and RCA's F-II satellite.

5. Educational TV Capabilities

The three public stations have studio production facilities to varying degrees. KUAC-TV at the University of Alaska in Fairbanks has capacity for studio productions on a contract basis, mastering on quad tape. (KUAC was the production contractor for all ATS-6 programming.) The stations in Bethel and Anchorage also do some production work, primarily for their own news and weekly feature programs. The smaller production facility in Juneau, contracted by the Alaska Public Broadcasting Commission (APBC) to Capital Community Broadcasters, Inc. (CCBI, Juneau) has three color cameras, expanding studio space and capacity to produce 4/3" cassettes and duplicate. This studio facility has produced a wide variety of programs for state agencies in the past year. There are also several independent Alaskan video producers, located in Anchorage and Fairbanks.

A complete inventory of video play-back equipment in the state's schools is not available, but it appears that such equipment is available in virtually all schools. Most of the rural schools were supplied with this equipment several years ago. Many schools currently use videotape programs on a fairly regular basis, primarily using tapes supplied by the Alaska State Film Library.

6. Newspapers

Alaska has 43 regularly published newspapers, mainly weeklies intended for local or regional distribution. The two daily papers published in Anchorage are read by nearly one-fourth of the state

population, and are distributed to some of the state's larger communities on a regular basis.

7. Libraries

There are approximately 300 public, school, university and special libraries in Alaska. The State Library, within the Department of Education, has facilities in Juneau and Anchorage, and a regional coordinator in Fairbanks, to coordinate statewide library services and to assist individuals without access to a local library.

Mail service is the standard means of materials distribution and inter-library communication. In FY 76, the State Library gave direct assistance and/or training to 65 libraries, and circulated close to 100,000 items by mail to community libraries, schools, other institutions, and individuals. In addition, the Anchorage Alaska Health Sciences Information Center handled 51,000 requests for information by health sciences personnel statewide. The Center operates from the Alaska Native Hospital in Anchorage and provides Med-line computer searches of the National Library of Medicine holdings.

Materials searches are facilitated by an extensive inter-library loan network, with Telex links between the Juneau facility, the University of Alaska/Fairbanks Library, the public library in Anchorage, and the Pacific Northwest Bibliographic Center at the University of Washington/Seattle. Service requests into Juneau, Anchorage, or Fairbanks are made by mail.

The Juneau State Library facility also houses the ERIC microfiche data bank (ED series), which is the only statewide facility with fiche-to-fiche duplication capabilities. Fiche copies, and readers, are distributed by mail.

The State Library's two film centers, in Anchorage and Juneau, are a major source of 16mm films and video materials for Alaska's schools. During FY 76, 35,000 films and tapes were circulated, from among the 7,500 titles held. The film centers are currently using a $100,000 capital grant to purchase copyright and duplication rights to update and expand holdings.

F. EDUCATIONAL CONTEXT

1. Elementary & Secondary Public Schools

Two-hundred and forty-one Alaskan communities have at least one school, with a minimum enrollment of six.

Appendix A.6 gives a regional breakdown of total schools, enrollment, and school size. Thirty-five percent of all schools are located within the Southcentral region, with 57% of all enrolled students.

The Interior region, with a major urban center, contains 18% of all schools and students. Southeast has a substantial number of smaller "urban" communities, in addition to scattered rural communities. This region contains 15% of the schools, and 13.5% of the state's enrolled students.

The remaining regions are primarily rural, with smaller school enrollments. The Western region enrolls 4.5%, and has 11% of the schools, followed by Northwest with 8% of the schools and 3% of the students, and Bristol Bay with 2% of total enrollment, and 7% of the schools.

Appendix A.7 illustrates the comparative elementary and secondary school sizes, by overall percentage. Fifty-nine percent of all elementary, and 60% of all secondary schools in the state have enrollments

of under 100. Of these secondary schools, 36% have under 50 students; many have fewer than ten students and offer courses (but not graduation) as an extension of the local elementary school curriculum.

A further breakdown of elementary school size shows that 13.5% are between 101 and 300; 18% enroll between 301 and 500; and 9.5% have over 500 students. Twenty-one percent of all secondary schools have between 101 and 300 pupils; 5% are between 301 and 500; and 14% have over 500 (Appendix A.8).

The total number of students by grade level, by operating school system, during the final reporting period in 1975-76 is shown in Appendix A.9.

There are eleven borough-wide school districts and 20 city school districts in Alaska, each operating with an administrative superintendent and locally-elected school boards. These 31 districts enroll a total of 84% of all students in the state.

The 21 new regional districts enroll 9% of all students.

The Bureau of Indian Affairs currently operates 50 elementary rural schools, and one regional, secondary boarding school, with a total of 5% of the state enrollment.

During 1975-76, there were 5,699 professional educational personnel in the state, of which 83% were public school classroom teachers (Appendix A.10).

2. Guidance

Approximately 30 districts have a combined total of approximately 125 full-time guidance personnel, within about 70 schools. Ninety-five percent are secondary counselors. The eight largest borough school districts contain 75% of all guidance personnel.

3. Special Education

There are 700 special education personnel distributed in all but one of Alaska's 52 public school districts, working with 10,000 students. The three largest districts employ 50% of all special education personnel in the state, who serve 45% of all special education students.

In 1975, funds were provided by DOE to establish five area learning resource centers (ALRC's), in Nome, Dillingham, Nenana, Anchorage, and Ketchikan, primarily to provide services to those students identified as exceptional. Staff at the five sites provided their regions with special education services on a district request basis during 1975-76. FY 77 funding for the centers was not continued, due to early 1976 legislation calling for these centers to be absorbed by seven (now six) newly-created Regional Resource Centers, to provide regionalized assistance in all areas of K-12 education, including special education.

4. Correspondence Study

Correspondence study is available through more than two dozen school districts in the state, as well as through the Department of Education. In FY 75, seven full-time staff and nine part-time advisory teachers provided elementary and secondary programs to nearly 500 students around the state.

5. Adult Basic Education

Adult Basic Education programs are offered to nearly 100 communities by a variety of agencies, primarily University of Alaska extension centers, the eleven regional program sponsoring agencies coordinated by the Department of Education, and by ten independent institutional sponsors. Last year, 3,000 Alaskans were enrolled in Department-supported ABE programs.

6. Post-Secondary

Post-secondary education is provided by five public, nine private, and a variety of proprietary institutions, in addition to the University of Alaska.

The University has three senior campuses, nine community colleges and 19 extension and learning centers throughout the state, enrolling a total of 22,000 students in FY 75. In early 1976, the University created a new unit devoted to Rural Education Affairs, which works with four community colleges and 13 learning centers to develop wide post-secondary opportunities for rural Alaska. The ultimate goal: delivery of any post-secondary course to any individual in any village in the state.

7. Historical Perspective

The isolation between schools and school districts in the state, added to the multiple agencies that have historically managed the state's schools, has long precluded the delivery of comprehensive and equitable support to all Alaskan schools.

Until June, 1975, the delivery of education in the state was divided into three separate systems with different governance and financing processes: city and borough school districts governed by locally elected school boards; schools outside city and borough school district boundaries (rural schools and schools on military reservations), placed under state jurisdiction in the Alaska State-Operated School System; and schools operated by the U. S. Department of the Interior through the Bureau of Indian Affairs.

The 134 schools in the ASOSS had been administered by a central office in Anchorage since 1971. The centralized administration of these schools was burdened by the logistics of transportation and communication in Alaska, and by a rapidly changing economic and cultural situation.

8. Decentralization

In June, 1975, the Alaska legislature brought to fruition the efforts of many by devising a means to decentralize the ASOSS. A series of informal and formal public hearings to implement the legislation resulted in the creation of 21 new Regional Educational Attendance Areas (REAA's) (Figure 1.2). The boundaries of the 21 new school districts were created on the basis of public input, taking into consideration socio-economic, linguistic and cultural similarities, transportation, communications networks, and natural geographic features.

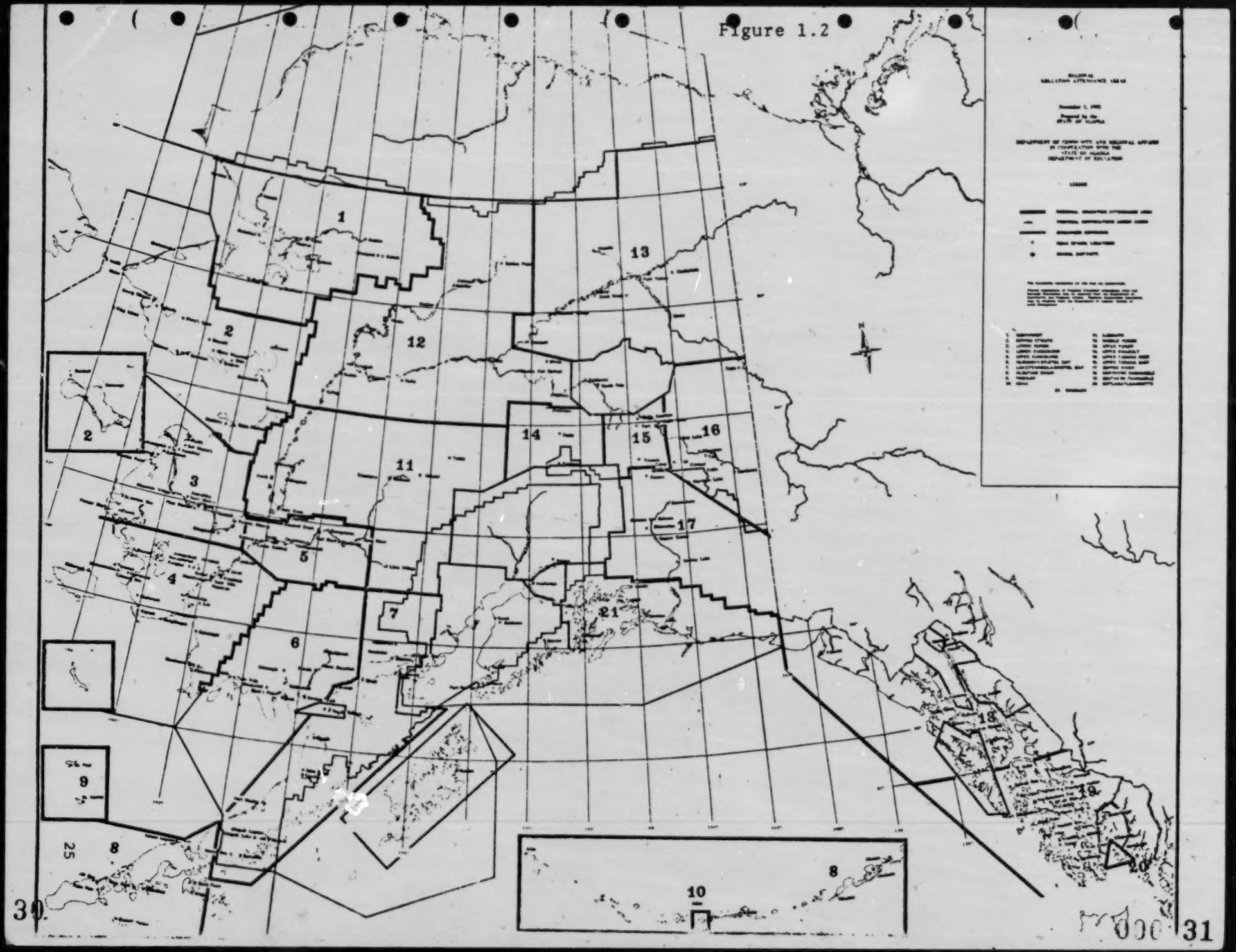
Elected in February 1976, the REAA school boards became responsible for guiding the schools on July 1, 1976. This transition from a centralized administration of geographically and cultural diverse areas to local control of smaller regions reflects the strong commitment of the DOE to placing as much control of education in local hands as possible.

At the same time, however, decentralization increases the demands upon the Department to provide adequate technical assistance; it must now aid not 31 but 52 school districts (Figure 1.2).

9. Community School Committees

The establishment of the new REAA's calls for each community served by a school operated by an REAA to have a community school committee. Elected by the voters in each community, this committee has the duty of reviewing and making recommendations to the

Figure 1.2



board on the curriculum, programs and general operation of the local school, creating a unique opportunity for wide community input in educational decision-making.

10. Bureau of Indian Affairs

Accompanying the creation of the new school districts is the increased likelihood of transfers of BIA schools inside an REAA to the REAA districts. With these transfers, the state will continue to move toward a single system of education governed by locally elected school boards.

Making it easier to accomplish this task is the Alaska Public School Foundation Formula which provides a high state level of funding for education. The creation of new school districts in the unorganized borough was not hindered by the lack of local or municipal tax base. Funding for the 1975-76 school year has been set at 93% of basic need, with increases in state aid possible for such factors as geographic isolation.

11. Local School Mandate

While strong support and increased local control indicate the state's strong interest in providing educational opportunities to the many scattered rural communities, it has long been of concern to many Alaskans that they must send their children away from their home communities for schooling beyond the elementary level.

The 1975 passage of legislation localizing control through the 21 new districts was one major step toward a solution to this problem. In May 1976, the State Board of Education adopted new regulations to further meet this need. The new regulations ensure that "consistent with the desires of parents and of local communities, the school-age

children in the State of Alaska have the opportunity to attend an elementary or secondary school in the local communities in which they reside."

The governing body in each of the state's school districts must provide an elementary school in each community with eight or more children available to attend, and unless the local school committee in the community request otherwise, must establish a secondary school in every community with one or more available students.

A secondary school should be available in every community by September 1, 1976, if a suitable facility exists, and must be in operation by September 1, 1977, unless additional time is granted by the Commissioner of Education.

The district is responsible for developing an educational plan for each school, and the local community must be included in its preparation. And each district, with community participation, must prepare an evaluation of each new district school.

12. Delivery of Services

Thus, in the past several years, the Department of Education's initiated decentralization has increased the local control (and range of programs available), especially in the rural areas. It has also increased the Department's responsibilities for providing support services and resources addressing the very specific needs of rural students.

Telecommunications and the potential application to education in Alaska steps clearly into the picture as a tool to create both management and communications channels to allow these new programs to reach their full potential.

13. Regional Resource Centers

Legislation in 1976 directly addressed the resource needs of all districts in the state, calling for creation of seven Regional Resource Centers. Designed as regional educational service agencies, these centers (now projected at six in number) are being created at constituent district option, through the coordination and administration of cooperative programs and funding.

The concept of this center network is to provide a locally-chosen means to fill locally-identified gaps in essential support services, increase the ability of each district to provide equal educational opportunities for all students, and loosen the rigidity of educational planning and programming.

The intent of this legislation was to permit school districts to join together to provide cooperative services which otherwise would not be available because of the high cost of establishing educational services in a single district.

Regional Resource Centers established on this basis could protect and promote local control and local determination, by equalizing and extending educational opportunities through programs and services to local districts while maintaining maximum policy determination at the local level.

The extension of available educational opportunities through regionalized resource development can reduce the penalties to districts with limited student populations, financial resources, and lack of specialized professional personnel.

While providing an overall coordination of local, regional and statewide planning, regional resource centers could provide economies

of scale, utilizing human and financial resource to the full.

The ultimate telecommunications delivery of locally selected educational support resources could be a deciding contributor to the success of decentralized service support for accounting, payroll, media, instructional support, bilingual curriculum, in-service and staff development, student diagnosis, school management and training, and school board training, as well as provide a general resource and management support link.

G. PROJECT PARTICIPANTS

1. Alaska Department of Education

The Alaska Department of Education exists to provide educational services to the citizens of Alaska. By statute, the Department is charged with the reponsibility to:

- exercise general supervision over the public schools of the state except the University of Alaska;
- study the conditions and needs of the public schools of the state and adopt or recommend plans for the improvement of the public schools;
- provide advisory and consultative services to all public school governing bodies and personnel; and
- establish, maintain, govern, operate, discontinue, and combine area regional and special schools.

The executive head of the Department is the State Board of Education, a seven-member body appointed by the Governor and confirmed by the Legislature. One student is selected as an eighth non-voting member. The Commissioner is appointed by the Board, subject to approval by the Governor.

The Department's main facilities are in Juneau, housing the executive administration, including the Commissioner and his Deputy

and special assistants, the eight Planning and Research Office staff members concentrating on research, systems development and student assessment, and the six staff providing statewide distribution and public information and publications preparation for virtually every section of the Department.

Four Commissions have been established either by state statute, regulation or federal law, all with operating programs and staffs, and separate annual budgets.

The Professional Teaching Practices Commission, with two staff in Anchorage, is concerned with the professional, ethical and contractual obligations of certified personnel.

Public broadcast stations, both radio and television, are regulated by the Alaska Public Broadcast Commission, with two staff in Anchorage.

The Alaska Rural Teachers Training Corps, supported by two staff in Anchorage, administers a post-secondary degree program designed to prepare Native teachers living in rural Alaska, remote from existing campuses.

The Post-Secondary Commission, with thirteen staff in Juneau and eight in Anchorage, reviews all post-secondary institutions, program offerings and budgets, making funding and legislative recommendations. In FY 75 the Commission administered the student scholarship financial aid program, awarding over $3 million to 2,000 students.

The Management, Law and Finance Division has 40 staff located in Juneau. The Division administers district school financial support programs, including boarding service dormitory programs for 900 students sub-contracted to five regional Native corporations, school food

service program federal funds, certification, development of data processing applications, assistance to upgrade district school financing management, and all payroll and supply functions.

The largest section within the Department, also in Juneau, is Educational Program Support, with 70 staff positions. Division staff review district programs and provide technical assistance to teachers and administration, and handle the distribution and accounting of categorical state and federal funding for special programs. Assistance is offered to local schools in the areas of elementary and secondary administration, teacher education, driver and traffic safety, guidance, health education, early childhood education, reading, correspondence study, educational standards, special education, vocational and career education, adult and continuing education, fire service training, and federal programs.

Within this Division, the Alaska Skill Center facility in Seward provides residential entry-level training, upgrading of skills and employability development to over 600 students annually, with a staff of 23. The Center is administered and operated by the Department in conjunction with the Alaska Department of Labor, and the BIA.

Approximately 70 staff worked within the Division of Vocational Rehabilitation, in FY 75 rehabilitating a total of 588 disabled Alaskans. The Director and staff are located in Juneau, with the disability determination unit and counselors in Anchorage, counselors in Fairbanks and Ketchikan, and a branch office in Tacoma, Washington, to work with clients requiring specialized services or training not available in-state.

Thirty-five employees of the State Library facility in Juneau assist individuals, schools, agencies and other users, as well as distributing materials statewide. The Anchorage film center has a staff of nine, and distributes audio/visual materials statewide. The Library's regional coordinators are located in Anchorage and Fairbanks, offering assistance and training to the state's public and school libraries.

Nine staff at the Alaska State Museum in Juneau offer assistance and training to 42 local museums scattered around the state, as well as distributing exhibits on Alaska's history, culture and art to schools and other public groups, with traveling exhibits.

2. Office of Telecommunications

The Governor's Office of Telecommunications' role has been one of policy development and liaison between state users and Alaska's communications vendors, to ensure the adequate development of cost-effective communications techniques to serve all state residents. GOT has been active in ascertaining user needs and has worked extensively with the Department of Education in developing telecommunications applications to meet statewide educational needs.

The Office has a staff of eleven and is located in Juneau. The Director and Deputy Director supervise liaison with the state's commercial carriers, the FCC, the Rural Telecommunications Committee, other state agencies, the legislature and the Governor. Two engineers work closely with RCA Alascom engineering personnel and national equipment suppliers on technical aspects of the small earth station program. The Agency Applications Manager deals with state agencies, particularly the Department of Education, in disseminating information and helping to coordinate communications planning.

Coordination with village councils, village and regional native corporations and the Rural Telecommunications Committee, is supplied by the Community Applications Manager, who works closely with the Office's Program Specialist in the RCA office in Anchorage to handle details of earth station installation by site.

In addition, consultants are hired on an as-needed basis, for legal representation before the FCC, and for in-depth research or project development.

GOT has currently contracted a leading authority in the field of regulatory economics to study Alaska's telecommunications industry. This study will be the base of recommendations for procedural changes within the industry to ultimately stimulate the development of healthy, privately-operated utilities capable of providing good service at reasonable cost.

The Office of Telecommunications has long been an active participant in the development of telecommunications applications in education. School location has been a consistent criterion factor in selection of the first 70 small earth station sites, and will be a continuing criterion in selection of the remaining 50 sites.

The 1975-76 operational phase of the ATS-6 demonstration in Alaska directly involved GOT in the process of satellite delivery of instructional television to rural Alaska, with the cooperation of DOE. In seeking the best means of transition from demonstration to practical application of the state's developing telecommunications system, GOT pursued further NIE funding to support development of the information necessary for DOE to assess and define the communications potentials to address identified educational needs. The project was officially

completed in July, with transfer of project responsibility to DOE in its continued planning.

Thus, the Department has experienced continued cooperation with the Office of Telecommunications, and evidenced concern within the Office for the state's educational needs and concerns. GOT will continue to supply the Department with technical and policy liaison with the state's vendors and regulatory agencies, to further implementation of DOE's selected communications network.

On a more immediate basis DOE has been assured that unused time on the state-leased F-II transponder for GOT's pilot television demonstration will be available for educational or other public interest programming, in five urban areas and 24 rural villages.

3. RCA Alascom

RCA Alascom, Alaska's only long lines carrier, is currently expanding Alaska's intrastate-long lines capacity, through a combination of the state's small earth station program, and the lease of terrestrial lines from the military.

In light of this expanding system, RCA is beginning to look at the development of full service government agency communication networks, particularly for the bush. The marketing division of the company recently employed full-time staff to coordinate state government uses, and pursue development of potential state government communications networks.

4. Alaska Public Broadcasting Commission

The Alaska Public Broadcasting Commission is committed to continued development of educational broadcasting for Alaskan residents. While public broadcasting in this state is not formally "educational"

in the strictest sense of instructional programming, further coordination and development of fully educational programming for communities is a continuing interest of the Commission.

5. University of Alaska

Liaison for telecommunications planning at the University of Alaska has been established within the President's Office. Post-Secondary Commission staff have been full participants in the Department's work with the Office of Telecommunications to date.

The initial tie with the University's computer capacity as outlined in this proposal developed as a result of continuing assistance from University staff members.

II. NEEDS DOCUMENTATION

A. INTRODUCTION

To state the extreme case, any listing or description of the educational needs in Alaska would be incomplete until the needs of each and every citizenry group were known. While this is neither feasible nor necessary, the desirability of having a maximally responsible decision process is recognized in the proposed telecommunications project. This is reflected in the planned management structure discussed in a subsequent section of the proposal. In addition the components and content of the development strategy were selected and designed to be responsible to several of the general educational needs which exist in Alaska. These needs and departmental priorities were documented in the "Results of the Department of Education Planning and Evaluation Survey" 1976 (see Appendix B.1). The results of the study supported the general conclusions that the department should (p.1):

- "provide leadership in establishing and maintaining statewide goals, needs, and priorities;
- identify and disseminate educational information, media resources and promising practices;
- examine and improve certification procedures;
- provide in-service training, especially through regional sessions;
- investigate alternate means of funding schools;
- improve communications (with local schools, both formal and informal);
- maintain support and emphasis on the basic skill areas, especially reading;
- develop new programs and curriculum and disseminate information about them (especially programs in careers, thinking skills and special education for the gifted)."

A discussion of the specific educational needs addressed by this proposal follows.

B. EDUCATIONAL NEEDS

1. Basic Communications

The Planning and Evaluation Survey evaluated the services offered by the Department and identified those areas where additional support was required

Since 78% of the respondents were teachers, teachers' opinions are dominant in the results. These broad conclusions, however, are also generally supported by the responses of the educators in the other categories surveyed. One of the recommendations of the report mentioned above was that the Department should:

> "improve communications (with local schools, both formal and informal)."

The problems of administrative and instructional support among and between (1) DOE, (2) school district offices, (3) the developing Regional Resource Centers (RRCs), and local schools are exacerbated by the geography, sparseness of population, and time zone differences described in the preceding section of the proposal. As an example, the Commissioner frequently needs to gain immediate district level response to situations occurring during the legislative process. On August 13, 1976 the Department's newsletter contained the following item:

> "Lower Yukon School District now has access to a phone--543-2811. It's a village phone so Supt. LaVern Etter advises callers to phone early in the day if they want to get through. Etter added, 'And it takes me about three minutes to run down there too.'"

Obviously, telephone communications are not always this difficult. However, polling all superintendents on a given day by phone, one at a time, is only barely feasible and -- from a practical standpoint -- almost impossible. The slowness of mail delivery compounds this problem. In facilitating the day-to-day interactions between DOE and local schools, the time for mail service serves as a factor which is variable and ranges from two days to two months. The matter of communications on basic recordkeeping, forms transmittal and information transmission can, and does, become hopelessly bogged down in the turn-around times of delivery via mail.

Telephone communications involving calls to DOE originating at the rural school district level are often surprisingly difficult even where school phones exist. For example, in Naknek, where two school district offices are located, there is a shortage of long-distance lines and calls to DOE often take several days to complete. Such calls must often be made during the early morning hours before the workday commences.

In the rural areas, intra-district management communications suffer from its own unique (and perhaps more severe) set of problems. In one district without a highway system, local schools lie approximately 200 miles in either direction from the central office. In another, the district superintendent must charter an airplane at a cost of several hundred dollars to be able to talk with the chairman of his school board. Transmission of written documents (memos, curriculum guides, etc.) is at best -- a lengthy undertaking.

The management of direct instructional support is reduced to a few expensive aircraft charters to crisis locations. Consider, for

example, the communications links in the Bristol Bay Borough and Lake and Peninsular school districts southwest of Anchorage. According to the latest information five village schools have no telephone communications and 18 have only radio phones. Thus the 78% of the schools having telephone service of any type depend upon a form of communication heavily affected by atmospheric conditions in a region where adverse conditions are prevalent. The radio phones do not provide a dependable system for adminisrrative or instructional support. support.

> *Thus, there is a need to establish an administrative and instructional support communications network characterized by interactive capacity, minimal on-site support personnel, and cost effectiveness.*

2. Resource Identification and Linkage

A recommendation of the 1976 Department of Education Planning and Evaluation Survey was that

> "emphasis should be placed on a coordinated plan to disseminate information, promising practives, and talent bank (data)."

The initial answer to this need has been Project A-TIP (Alaskan Talent Information, and Promising Practices), an NIE funded project housed in DOE. Through the A-TIP project, educators will have access to state and local resources and to an information retrieval and dissemination service provided by the San Mateo Educational Resource Center (SMERC).

The SMERC linkage provides Project A-TIP with a variety of information and instructional resources. The information resources available include ERIC, and therefore RIE and CIJE. These documents

are accessed through the use of Lockheed's ERIC/DIALOG. In the area of instructional resources SMERC provides access to FIDO (Fugitive Information Data Organizer). This is a catalog which indexes fugitive materials developed by educational practitioners. The SMERC linkage will be of maximum value for its capacity to retrieve these instructional materials.

The primary product from activities of the A-TIP project will be a statewide system for continuous exchange of information and sharing of products between educational agencies within the state and several agencies from outside the state. The project was conceptualized and developed around six primary dissemination functions. These are:

- identification of user characteristics and information needs;
- promotion and development of user awareness;
- user access to the information and materials repository;
- identification and description of instructional resources;
- acquisition and processing of instructional resources;
- instructional resource and information distribution.

The general goal for this project is to design and test a statewide dissemination system which:

- is based upon user information needs;
- employs various forms of technology, including telecommunications, for distribution of materials and information;
- functionally integrates all instructional resources available for use within the state.

In May, 1976, A-TIP personnel completed a User Needs Survey. The purpose of this survey was to gain some indication of the types of information desired by administrators and teachers in the State of

Alaska. A 64-item questionnaire was administered to a limited sample of educators from 21 school districts in the state. Items were designed to assess the importance of informational needs in eight categories. These were: Method/Activities; Content; Cost; Student Behavior; Teacher Behavior; Evaluation; Facilities; and Other. The individuals surveyed indicated high information needs in most categories. The results of the study are included in Appendix B.2.

Several A-TIP workshops have already been held in the state to explain the services provided by the project and the methods for requesting information. The requests for information resulting from the workshops have been substantial. However, a problem encountered in the project has been the slowness and/or unavailability of a vital telecommunications link. Thus a second need to be addressed by the project is stated as follows:

> *There is a need to establish a method for rapidly accessing repositories of a wide variety of instructional materials and related information.*

C. STUDENT DIAGNOSIS AND INSTRUCTION

1. Student Diagnosis

Student assessment in Alaska has been piecemeal at best. Tests were selected and administered through local option and data relative to student performance was not available. Recent policy decisions in the State have emphasized the need for more systematic data on student performance if truly effective instructional programs are to be developed.

With this perspective in mind the DOE Office of Planning and Research addressed the problem of development of a statewide system of student assessment. After completing pilot projects in which commercially prepared tests were tried out in a number of school districts, a conference on student assessment was convened in Anchorage in February 1974. Office of Planning and Research personnel met with teachers from 50 schools from eleven school districts who had previously volunteered to utilize a published test. From that experience, and a broad survey of available testing systems, a firm decision was reached at a March 1974 meeting, attended by teachers and administrators from the eleven school districts, to proceed with the development of a statewide criterion referenced student diagnostic system. The system was to be based on educational objectives identified by Alaskan teachers.

This led to the formulation of the Statewide Instructional Support System (SISS) and the Alaska Objectives and Items Bank (AOIB). The AOIB includes objectives and items in Reading and Computational Skills for grades 1-8. Items from the bank were administered to a 20% sample of students statewide during the 1975-76 school year and the experience was judged a success. Statewide implementation is scheduled for Fall 1977. Services to schools will include the administration and scoring of tests for students not included in the annual sample and a teacher scored diagnostic test. In addition, teachers may wish to select from the objectives bank and manually construct a customized diagnostic test. However, the delivery of customized tests and the rapid, efficient gathering of student responses to items by DOE is nearly impossible under this manual system of student diagnostics.

The implementation of the full power of the testing system depends on the rapid long-distance transmission of customized tests and student responses. Average turn-around time via mail on commercial test scoring services is approximately seven weeks. Thus a third need to be addressed by the project can be stated as follows:

> *There is a need to provide individual student diagnostic services, especially in the areas of reading and computational skills, and to do so on an as-needed basis.*

2. Rural Secondary Education

A recent NIE publication entitled "Economy, Efficiency, and Equality: The Myths of Rural School and District Consolidation" by Sher and Tompkins discusses the issue of rural school consolidation. The authors state (page 1) that:

> "The most successfully implemented educational policy of the past fifty years has been the consolidation of rural schools and rural school districts. One room, multi-graded elementary schools have been eliminated in favor of larger, many-roomed, age-graded schools. Small rural high schools have been closed down and new, centrally-located schools built to which most students are bussed. Small school districts have merged with neighboring ones and larger schools have been built within the new district."

The authors note that school consolidation was based on notions that "bigger is better." That economy of scale provides the possibility for "a reform of unlimited potential for solving most of the problems long considered the hallmark of rural education." The only objections to consolidation historically came from parents who did not want their children to travel to distant communities or feared the effects of consolidation on the life and vitality of their individual communities. However, these individuals had to concede that consolidation would save money through a combination of scale economics and increased operating efficiency. Everyone assumed that the better

qualified administrators and teachers attracted to consolidated schools would provide a higher quality education than their less credentialed rural counterparts.

The authors note (page 3-4) that:

> "Given the enthusiasm with which professional educators encouraged consolidation, one would expect the empirical evidence supporting their assertions (about the advantages of consolidated schools) to be overwhelming. It is not. The supporting evidence is incomplete -- many critical questions and potential liabilities are simply ignored. It is methodologically unsound, with almost every study open to criticisms severe and significant enough to make their findings extremely suspect. The conclusions are, at best, inconclusive; and at worst, simply incorrect. In short, there is no strong empirical base to support the assumptions and assertions of school and district consolidation advocates. Thus, while consolidation has become the conventional wisdom in rural education, careful scrutiny of the available evidence makes the adoption of this particular policy appear to be more conventional than wise."

The authors go on to destroy what they call the myths of economy, efficiency, and equality of rural consolidated education and recommend the following (pages 40-42):

> "Small schools deserve more attention...
> Alternatives to consolidation and reorganization should be seriously considered...
> Research done in order to demonstrate the value of a practice (such as consolidation) should be scrutinized very carefully."

Consolidation of rural schools in Alaska had, at one time, taken the form of the boarding school at the secondary level. With the sparseness of population, distances involved, and difficulties of transportation, the busing model has not been appropriate for the state. The negative social and personal consequences of the separation of secondary students from their families and communities through attendance at such boarding schools were tremendous. Based on the evidence and

the desire of Alaskans for equality and local control in education, legislation was passed which decentralized the state-operated system of rural schools. Despite the absence of local government, the state created 21 new regional school districts. In addition, the legislation was sensitive to an issue raised by a major Alaskan-court case (Tobeluk v. v. Lind) which focused on the need to provide education at or near the student's place of residence.

One of the provisions in the legislation requires that secondary education be provided regardless of the number of students. In the Bristol Bay area (Region #4) the operational definition of this provision is to initially provide a ninth and/or tenth grade program in each village where there is an eligible secondary student or students. Though the implementation of rural secondary programs varies across the parts of the system, the problems of providing a comprehensive secondary program with limited staff and facilities and under isolated conditions are similar. Thus in rural secondary education:

> *There is a need to provide direct instructional support in those situations where limited staff requires the teacher to serve in the role of facilitation of learning rather than teach per se.*
>
> *There is a corresponding need to provide teacher inservice training and teacher support in a manner that does not always require the physical relocation of staff.*

D. TELECOMMUNICATIONS ALTERNATIVES SURVEY

1. Procedures

The Department of Education began intensive work with the Governor's Office of Telecommunications over a year ago, with formation of a Telecommunications Task Force. Department personnel on the Task

Force represented virtually every Department division, including Libraries and Museums, Vocational Education, Public Information, Educational Program Support, Adult Basic Education, Special Education, and the Office of Planning and Research.

Last fall, under the Office of Telecommunication's working grant from NIE the Task Force met frequently with GOT staff. The goal of this joint effort was to prepare information for educators statewide exploring the potential applications of telecommunications to education.

The first phase of this informational effort was the development of a written overview of the purely technical alternatives made possible through Alaska's expanding satellite earth station network. In conjunction with this written overview, GOT staff prepared a videotaped summary designed to give educators a general understanding of the applications implied by the term "Telecommunications" and the possibilities inherent in the state-supported earth station program.

This information (Product 1 under GOT's NIE Contract) was presented to the Department, made available to all Department staff over the course of several months (in early 1976). The Department printed the written portion of this product as a booklet titled "Telecommunications Alternatives for Education," and made available to all staff and district superintendents (attached as Appendix B.3).

GOT and the Department then began extensive work to determine the applicability of improved communications systems to identified educational needs. With Task Force assistance, a second informational package (Product 2 under the NIE Contract) was produced by June, 1976. This package (again in written and videotaped form) was designed for an

audience of all Alaskan educators, from superintendents and local boards to individual teachers. This material included simulations of day-to-day problems caused by inadequate or non-existent communication channels, and the telecommunications application that might meet this need.

The work generating this information led to four specific categories of Alaskan educational needs that could be enhanced and improved by better communications systems:

- Instructional Resources and Programming
- Staff Development
- Information Exchange
- Management

This information package is attached as Appendix B.4.

Using the basic systems' capabilities outlined in the first informational package, Department personnel helped define applications within the above four categories. Suggested applications range from the applicability of computer assisted instruction for basic skill development, to expanding training available to Adult Basic Education local instructors, to the reduction of paperwork.

This information was presented visually in the videotape, and a tabloid newspaper with more detailed information was printed by the Department. Both versions of this information contained questions designed to solicit viewer and reader reactions and priorities from the list of suggested applications.

In August 1976, five thousand copies of the newspaper were mailed directly to all schools for distribution to all public

school teachers, both rural and urban. The form included for response was self-contained, and included return postage.

In addition to this report, an on-site visitation was made by project staff to 26 representative districts. These presentations and work sessions with school boards, teachers and community members were conducted to inform participants of the improved communications network underway statewide, and its specific relevance to improving communications to each school. Reactions were sought, using the second informational package to allow participants to determine and identify communications needs priorities in their district.

2. Results

With the intent of gathering field input as directly and effectively as possible, an itinerary was established to allow project presentations to a sample of rural and urban superintendents and school boards, to explore the specifics of communications needs and the applications of the proposal as drafted.

Time for this effort was limited (late September and most of October of 1976); travel funds were fairly modest; the only airline serving Juneau went on strike as travelling was to begin; and a number of board meetings were cancelled or postponed. Given those restrictions, sessions were still held with a good cross-section of Alaska's boards and, with the mailed responses, a viable sampling of opinions and interests was obtained.

The effort culminated in a substantive presentation by the project director and the field input coordinator, to the Alaska School Administrators Association in Kodiak in late October, a meeting attended by virtually all 52 public school superintendents in the state.

An additional portion of the field input effort involved the distribution by mail of the written report of Product 2 and response sheet (see Appendices B.3 and B.4) to all public schools in the state. Distribution within each school was the responsibility of the principal or building supervisor.

A large return of response sheets was not anticipated. The intent of the mailing was primarily informational. However, it did allow feedback by those interested. The narrative responses returned are included and quoted within this summary, primarily as articulated validations of observations in the field. The prioritized responses are listed below.

The informational content of the distributed material was high, requiring some concentration and time to complete the questionnaire. The subject matter is new to many, and appears complex to most. Given those parameters and inhibitors of user participation, 75 responses were received. The majority (32%) came from Anchorage, 10% from Fairbanks, 6% from Sitka, with the remainder distributed fairly equally from 11 of the 21 regional districts, and 13 of the 31 city and borough districts. The majority of respondents were teachers (80%), with 16% either full or part-time school administrators. The grade levels represented by the respondents are as follows:

	Percent
Elementary K-6	30
Jr. High 7-8	14
High School 9-12	24
K-12	27
7-12	4
Partial High School (9-10)	1

The school sizes represented were:

Under 100	10
101-300	21
301-500	13
Over 500	26

The data from the response sheet used in the survey are summarized in Tables 2.1 and 2.2. In Table 2.1 the percentage of responses is given for each of the five categories (from high to low priority) for each item on the questionnaire. The items are prioritized based on the most frequently selected alternatives. The item means are presented in Table 2.2.

It is apparent from these data that almost all of the items on the questionnaire received a positive rating. The items receiving the higher ratings are typically those having to do with instructional resources, individually initiated (as opposed to required) staff development, informal information exchange, increasing input and information on state guidelines and forms, and the computerization of reporting methods. Items rated somewhat lower were those regarding the keeping of recertification records, the distribution of information from school board and the State Department of Education. The information clearly reflects the preference of the teacher-dominated sample. The priority ratings for administrative applications of communications would likely be higher in a group representative of educational administrators.

In addition to the responses to the questionnaire, comments and suggestions were solicited from participants at the meetings held throughout the state. These comments were carefully

TABLE 2.1
COMMUNICATIONS APPLICATIONS (mail response)
PRIORITIZED RESPONSE BY PERCENTAGE*

	Hi Priority 5	4	3	2	Lo Priority 1
1. STAFF DEVELOPMENT For local training opportunities	43%	28%	13%	4%	12%
2. INSTRUCTIONAL RESOURCES to expand courses & curriculum	39	28	14	7	12
3. INSTRUCTIONAL RESOURCES for getting resource materials	37	19	17	17	10
4. INFO EXCHANGE to increase public input to Dept.	16	42	26	11	5
5. MANAGEMENT to increase input and info on state and fed guidelines & forms	18	29	27	10	16
6. INFO EXCHANGE to distribute Dept. info in variety of media	12.5	12.5	50	25	0
7. MANAGEMENT to offer computerized reporting methods	27	16	37	8	12
8. INFO EXCHANGE to informally exchange info & ideas	21	32	37	0	10
9. INFO EXCHANGE to improve SB communications	17	22	33	17	11
10. INSTRUCTIONAL RESOURCES to get research findings	25	19	32	13	11
11. STAFF DEVELOPMENT to earn recertification credits	24	16	27	10	23
12. STAFF DEVELOPMENT to keep recertification records	17	6	27	15	35
13. MANAGEMENT to arrange meetings on short notice	15	16	25	16	26

*The model response to each item is indicated.

TABLE 2.2
COMMUNICATIONS APPLICATIONS (mail response)
MEAN RESPONSE

		High Priority 5	4	3	2	Low Priority 1
INSTRUCTIONAL RESOURCES						
for getting resource material	(3.58)			•		
to expand courses & curriculum	(3.73)			•		
for getting research findings	(3.31)			•		
STAFF DEVELOPMENT						
for earning recertification credits	(3.09)			•		
for keeping recertification records	(2.54)				•	
for providing training opportunities	(3.86)		•			
INFO EXCHANGE						
to informally exchange info & ideas	(3.52)			•		
to improve school board communic.	(3.16)			•		
to distribute Dept. info in media	(3.13)			•		
to increase public input to Dept.	(3.52)			•		
MANAGEMENT						
to arrange meetings on short notice	(2.78)				•	
to increase input & info on state guidelines & forms	(3.22)			•		
to offer computerized reporting methods	(3.39)			•		

recorded. A representative sample of comments within several areas of concern follows:

> As a board member in Valdez stated, anticipating the project's applicability to expanding Valdez's contact with the rest of the state, and consequent expansion of learning experiences for students: "The real question is not how much will it cost us, but how much will it save us?"
>
> From a teacher in Sitka: "My biggest problem is lack of instructional resource materials or their availability. Perhaps some are available and I just haven't heard. We need current listings of materials and their location available to each school and speedier delivery."
>
> "A big problem is the lack of resource materials and using obsolete and outdated materials. With better communications we could share resource materials when needed, rather than waiting for the physical exchange of limited materials between many areas." (Southeast Islands Rural Teacher)
>
> "My biggest frustration? Lack of access to information and lack of communications." (Yukon Koyukuk Rural Teacher)
>
> The Alaska Regional Secondary School (ARSS) Forum stated the case for secondary training needs: "Practitioners and consumers agreed that the crucial element in the delivery of education in rural areas is the teacher. Traditional teacher education programs have been turning out specialists unprepared for teaching bicultural students in a small high school situation requiring flexible generalists...Courses which will enable experienced teachers to become more effective bush educators must be developed and offered..."
>
> "We need specific program in-service to answer needs--i.e., food service, maintenance training, aides, special education, remedial, etc." (North Slope Borough Administrator)
>
> "We need some means of offering courses we may not have a staff member qualified to teach." (Southeast Islands Teacher)

3. Information Exchange

> "Sometimes I feel so isolated. One day I know I'm the worst teacher, and maybe the next week I feel I'm the best in the world. But there's no faculty lounge for

me to go to, no way to compare my ideas or methods with anyone. You really need that."

"Management needs this too. Board members and administrators might have a look at innovative and exemplary programs from across the nation. And we could share a few ideas on tape with others, too. We have a rare mix of excellent staff/programs here." (Ketchikan Teacher)

"...Possibly a dialogue by telecommunications would be more fruitful than written and occasional personal communications, as immediate feedback occurs, AND YOU CAN'T LOSE A CONVERSATION IN A PILE OF PAPERS!" (Ketchikan Teacher)

4. Management

Administrators reacted positively to the mail-box system as outlined in the proposal, though some remain skeptical of the quality of their local line and the foul-ups it may cause. Many expressed the desire that training and operator language be as simple and direct as possible, and concurred in the need for a trouble-shooting link particularly in the early stages of the project.

"In the twenty years that I've been teaching, the profession has been inundated with marvelous machines and teaching systems all designed to aid student learning and make teaching "easier" (ha!) and provide better results. Well--I have found that the children are in about the same boat scholastically regardless of all the innovations; and teaching has become increasingly difficult. Discipline has become a major time-consuming chore; and when I see some of the irresponsible, shiftless, drifting high school graduates we are producing--I wonder. I seriously doubt if a telecommunications system would really eliminate paperwork." (Southwest Rural Teacher)

"It would be a shame if the bureaucracy of controlling the system negated the effectiveness for which the system is intended! Whichever expedited the applicability of the system." (Yukon Koyukuk Rural Teacher)

III. PROJECT MISSION, STRATEGY, AND OBJECTIVES

A. INTRODUCTION

The telecommunications project has been designed to meet the needs described in the preceding section of the proposal. These needs include: (1) a need to provide a basic statewide administrative communications network, (2) a need to provide educators throughout the state with rapid access to repositories of a wide variety of instructional materials and related information, (3) a need to provide individualized student diagnostic services, (4) a need to provide direct, non-traditional instructional support and related in-service teacher training, especially where a new educational role for the teacher is dictated by the project (a more detailed description of these needs was presented in Section II). This project is an attempt to capitalize on the power of modern communications technology as a part of the solution strategy in meeting these defined educational needs.

B. PROJECT MISSION

The project mission is therefore:

> "To design, test, demonstrate, and diffuse administrative and instructional utilization of a variety of configurations of modern communications technology in Alaska."

C. PROJECT STRATEGY

The overall project strategy consists of piloting two interrelated levels of technology utilization and diffusing those subsystems and modules which prove successful.

1. Level I - Core Communications

The first level will be a core communications system linking the State Department of Education offices in Anchorage and Juneau with six Regional Resource Centers, fifty-two district offices, and the University of Alaska Computer Center. These linkages will be provided via RCA satellite communications links to a computerized "mail-drop"[2] system for sending, storing, and receiving written messages between and among the above agencies.

This Level I network will be designed to (1) facilitate rapid communications regarding administrative matters, (2) facilitate rapid access to educational materials and resources within the State as well as to the San Mateo Educational Resource Center (SMERC) in San Mateo, California, and (3) facilitate telecommunications project dissemination and user feedback.

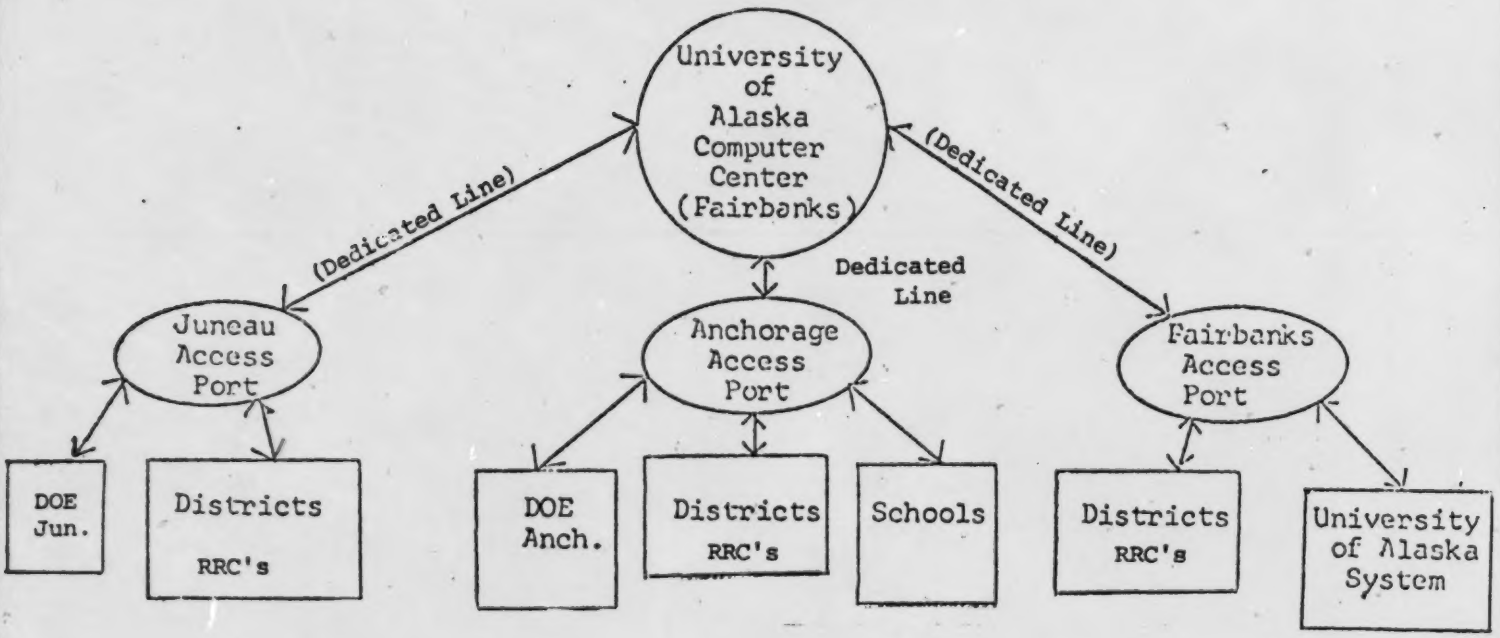
The agencies ultimately having access to the system will be the Department of Education offices in Juneau and Anchorage, the 52 district superintendent's offices, six RRC offices, and 28 schools from four school districts in Region #4 (Dillingham, Bristol Bay Area). The individuals having access to the system would include, but not be limited to, the staff of the Department of Education, the 52 superintendents and their staffs, the Regional Resource Center, and the staffs of the selected Bristol Bay pilot schools.

The Level I System will link districts and regional resource centers to three access ports (Juneau, Anchorage, Fairbanks). These access ports are linked by dedicated line to the University of Alaska Computer Center in Fairbanks.

---

[2] See Appendix C.2 for a computer generated description of the "mail-drop" system.

Schematic Representation of the
Level I Administrative Communications Network



A graphic display of this network appears on the preceding page.

2. Level II - Intensive Pilot for Expanded Utilization

The second level of technology utilization will be housed within an intensive pilot region (the Bristol Bay Region) in Southwest Alaska. This second level will extend the above core communications networks to all 32 school sites within this region. In addition, a fully dedicated audio network will link the 32 sites in this region.

The Level II network will be designed to: (1) design and test utilization of a computerized student diagnostic system, (2) design and test a 9th and 10th grade rural secondary education curriculum and delivery system, (3) design and test variable speed hard copy transfer, and (4) provide a capacity building site for expanded utilization of the student diagnosis and rural secondary curriculum and delivery system.

The area chosen for intensive implementation of the telecommunications project is the Bristol Bay Region. Regional Resource Center #4, located in Dillingham, serves the region. The area includes four school districts. These are: (1) Bristol Bay Borough School District (Naknek), (2) Dillingham City School District (Dillingham), (3) Southwest Regional School District (Headquarters at Dillingham), and (4) Lake and Peninsula School District (Headquarters at Naknek). In this area are included four superintendents, 132 total professional school personnel, and 1523 students. The students are distributed as follows: 855, K-6 students, and 668, 7-12 students.

Two cities, Bristol Bay and Dillingham, have 652 of the 1523 students in the area. The rural schools are K-6, K-8, or occasionally K-10 and contain 871 students. Of the rural students 313 are post

elementary (meaning attending 7-8 or perhaps 9-10). A typical village school has 15-40 students and 1-2 teachers.

The total number of non-Native students in the area is 221; most of these (175) are located in the two cities.

The Bristol Bay Region was selected on the basis of having met seven requirements.

First, there was strong evidence of interest and support from the superintendents and boards whose districts form Region 4. Moreover, the superintendents all have long backgrounds of successful commitment to Alaskan public school education. They represent a diversity in background and opinion and have the respect of their peers in other districts. The latter is important to any statewide diffusion effort.

Second, the four districts represent the total potential in terms of variety in forms of local governance. The Bristol Bay Borough School District, located at Naknek, is--as the name implies--based on a borough form of government controlled by a borough assembly elected area-wide. The Dillingham City School District has a city council form of local government.

The Southwest Region School District and the Lake and Peninsula School District are two of the newly (July 1, 1976) created school districts which had their origin in the dissolution of the State Operated School System. Their central offices are located in Dillingham and Naknek respectively. There is no local contribution to funding as is the case in borough or city schools. Each has an elected area-wide board which is backed up by community committees for local village input into questions of governance and policy.

Third, the four districts--while basically rural--represent a fairly broad range of social environments. As a consequence, there is a wide range of students in terms of backgrounds; from the small village Native youngster to the middle-class white child in Dillingham who may have spent a number of years in larger cities in other states.

Fourth, Region 4 has elected to form a Regional Resource Center and it is located in Dillingham. Telecommunications could have a significant impact on the variety of educational services offered by the center. Moreover, it could significantly affect the manner of delivery of those services.

Fifth, both now and throughout the life of the project, Region 4 offers a wide range of communications and power source alternatives. These varying contexts are important in terms of gaining field-based data on the environmental sensitivity of various uses of the technology itself. As an example, village power systems are notoriously undependable in terms of reliability and consistency in output. Factors such as these will play a significant role in determining what telecommunication software and hardware mixes are suitable for what sorts of operating environments.

Sixth, Region 4 has several features which make it desirable from the standpoint of cost efficiency and cost feasibility. The four (4) central offices are located in two locations which are, in turn, close to one another in terms of relatively inexpensive flights by charter aircraft. One of the locations is served by regularly scheduled jet service from Anchorage.

Seventh, Region 4 meets the criterion of need; both in terms of the existing communications system and the educational program.

The provision of a comprehensive secondary education program within the village school is made difficult by the fact that such schools may have only one or two teachers. It is extremely unlikely that any one or two teachers, typically elementary level teachers, possess the range of educational knowledge and skills necessary to provide the variety of offerings required for a quality secondary level education. Further, needed materials and resources are likely to be unavailable.

The sites in the intensive pilot region include the following:[3]

Code		Site
p	1.	Regional Resource Center (Dillingham)
p	2.	Bristol Bay Borough School District (Naknek)
p	3.	Dillingham City School District
p	4.	Southwest Region School District (Dillingham)
p	5.	Lake and Peninsula School District (Naknek)
p	6.	Bristol Bay Consolidated High School and Naknek Elementary School (same building)
p	7.	South Naknek Elementary School
p	8.	Dillingham Elementary School
p	9.	Dillingham High School
v	10.	Aleknagik School
v	11.	Aleknagik-North Shore School
e	12.	Clark's Point School
e	13.	Ekwok School
e	14.	Koliganek School
v	15.	Levelock School
v	16.	Manokotak School
e	17.	New Stuyahok School
v	18.	Ohgsenakale School (Portage Creek)
e	19.	Togiak School
e	20.	Twin Hills School
e	21.	Chignik Bay School
e	22.	Chignik Lagoon School
e	23.	Chignik Lake School
v	24.	Egegik School
e	25.	Igiugig School

[3] The major communications link is provided by the RCA satellite, the individual connections to the sites are designated (p) for local phone link, (v) for VHG link, (e) for cable link to an earth station, and [e(c)] for a connective link to a nearby earth station.

Code		Site
e	26.	Ivanof Bay School
e	27.	Newhalen School (Iliamna)
e(c)	28.	Nondalton School
e	29.	Perryville School
e	30.	Pilot Point School
e	31.	Port Heiden School
v	32.	Port Alsworth School

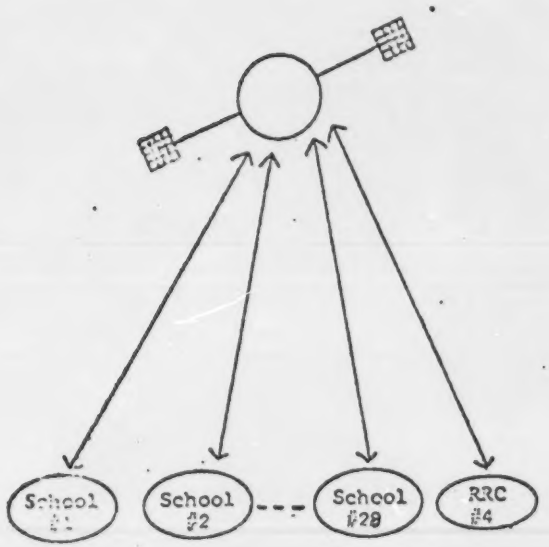
At present, links to nine locations can be provided by local telephone companies. Earth stations, already in place or tentatively scheduled for installation prior to December 1977, allow for line installation to sixteen locations. An additional seven links will be by VHF.

The communication links involve two new networks. These two networks are (1) a dedicated line network and (2) the Level I "mail-drop" and computer access network. These two networks are shown in the chart on the following page. The dedicated line network will consist of a dedicated voice data line using primarily the Bristol Bay Area earth stations and the RCA communication satellite. Twenty-four hour per day scheduled access to the line will be provided for the 28 participating schools and Regional Resource Center #4 located in Dillingham. A variety of one-way and interactive instructional programming will be made possible by the system.

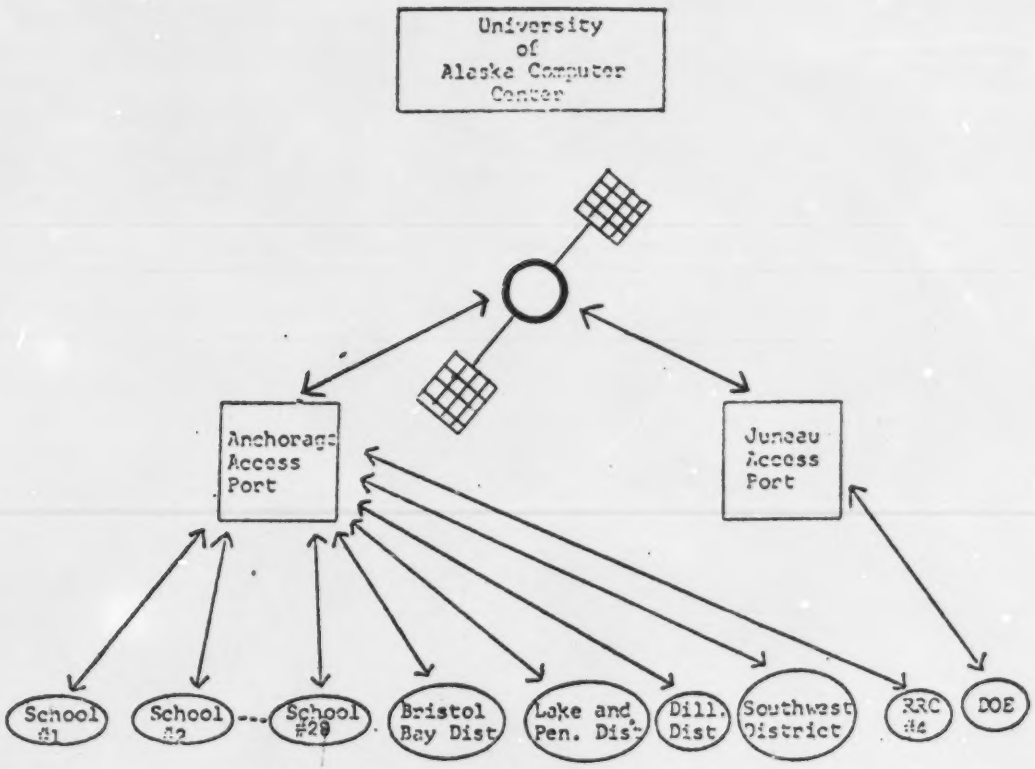
The second communication network included in the diagram, the "mail-drop" and computer access network, links the 28 Bristol Bay Area schools with the regional resource center in Dillingham, the four district offices located in the Bristol Bay Region, and DOE/Juneau. Not shown on the diagram is the fact that this network also provides access to the other five RRCs, the 48 other district offices and DOE's Anchorage office.

Schematic Illustrating Communications Network
for the Bristol Bay Region (Intensive Area)

Dedicated Line



"Mail-Drop" and Computer Access



Of course, there is the third communication network, the Level I system which links RRC #4 with the DOE and the San Mateo Education Resource Center.

3. Dissemination and Diffusion to Achieve Post-NIE Support

One unique feature of the project which allows for early dissemination of project information is the core administrative communications network itself. This network will provide the capacity to maintain (through the "mail-drop" system) continuing communications and understanding about the project's progress as well as providing an efficient and continuing user feedback mechanism.

A second feature will be a "capacity building" effort. The initial site for this effort will be in the Bristol Bay pilot region. This capacity building will have two dimensions. First, staffs of the four districts and the Regional Resource Center in the Bristol Bay Region will be full partners in the design, development, and testing of the student diagnosis system and the rural 9th and 10th grade curriculum and delivery systems. Through this effort, local skills in curriculum and instructional development will be enhanced so that continuing design and development can continue beyond the four years of federal project support. The second dimension of the capacity-building effort will be the briefing of representatives of the other Regional Resource Centers during the first two years of the project, followed by project-supported preparation of staff from the Alaska Center for Staff Development and the Southcentral Regional Resource Center (Anchorage).

The Alaska Center for Staff Development (CSD) is located in Anchorage and has State Department of Education support for basic operations. The primary responsibility of this organization is to offer short-term highly intensive, skill training to professional educators. Workshops are organized on the basis of local, regional, or statewide demand and often involve local funding.

During the third and/or fourth years of the project a staff member from the CSD and the Southcentral RRC (Anchorage) will be located at the Dillingham Regional Resource Center. The Southcentral Regional Resource Center was selected because it serves the region in which initial replication and diffusion is most likely to occur. As such, it is important that this RRC have as much contextual background as possible. By working with the Dillingham RRC and project team the Anchorage staff member can provide valuable input on the issue of exportability of products, whether they be training packages or student instructional programs.

As product development occurs the CSD staff member will, within specifications established by the state and under the supervision of the contractor, develop user training packages for each major product or utilization module.

These packages may involve training for board members, administrators, teachers and students. Except for students, the focus will be on the validation of need vis-a-vis the appropriateness of a telecommunications alternative, the environmental and resource requirements of a given alternative, specific user protocols and expectations (the focus of student training), and internal management and evaluation.

Field trials and the establishment of appropriate RRC training responsibilities shall be heavily dependent upon the experiences and insights of Dillingham RRC staff members. While there is an interactive process between all sub-systems or organizations, the continuing roles for each agency are somewhat obvious.

The state establishes policy and provides funds for product development.

The CSD designs, with external contractor assistance when required, training for telecommunications systems installation.

The CSD serves as a trainer of trainers and installs and maintains the capacity for LEA training in one or more Regional Resource Centers.

RRC center staff train local districts and gather user information based on a discrepancy analysis.

RRCs will have, as a general staff skill, the capacity for assisting districts in product adaption. In the instance of a need for significant modification the training package will be cycled back to the CSD. Should there be a complete absence of an appropriate package, the request for development resources will be made to the state.

The LEAs, in districts which have already experienced installation, shall serve as a talent bank resource for the LEA contemplating installation.

Because the project is aimed at avoiding highly expensive uses of telecommunications, it is envisioned that the products selected for diffusion will be well within the capacity of local and state resources to cover the costs of implementation and maintenance.

A third key feature will involve periodic project demonstrations and conferences involving users from across Alaska--providing "hands-on" experience in systems utilization.

Finally, formative evaluation of each of the project components will result in a detailed analysis of cost-utility, and a plan and policy recommendations for state and local financial support beyond the period of NIE support.

4. Strategy Summary

The basic approach employed in the project will be to implement the systems in the following manner: construct the system or a major portion of it, pilot the system using small-scale pilot runs to refine operational requirements and procedures, conduct a full-scale pilot study of the system, determine final operational requirements, and then determine the potential for full-scale expanded, continued operation of the system by the state and districts after the termination of federal funding. Thus, there will be a continuing major emphasis on formative and summative evaluation in the project. The evaluation will attempt to determine not only how successful the project components are from a community, instructional, and administrative point of view, but also the cost-utility of the components and the long-range implications for continued use in the state.

Another critical ingredient relates to the production of the instructional components. Through systematically obtaining local input and, in fact, working in full partnership with the Bristol Bay Region educators, products will be developed to be maximally responsive to local needs and conditions. However, it will be recognized that a

E. T. A. PROJECT STRATEGY

LEVEL I
Core Communications Network

- 2 DOE Offices
- 52 District Offices
- 6 Regional Resource Centers
- University of Alaska Computer Center

Uses:
- Administrative communications
- Resource identification and linkage
- Project dissemination/user feedback

LEVEL II
Intensive Network for Instructional Diagnosis, Design and Programming

- 32 School Sites in Bristol Bay Region

Uses:
- Test utilization of computerized student diagnosis system
- Design and test 9th and 10th grade curriculum and delivery system
- Test variable-speed copy transfer
- Capacity building for diffusion

major goal of the project is to determine the prospects for statewide implementation. In this regard it is necessary that the products have a high degree of usefulness for the entire state and are not tailored to a single region to such a degree that they have virtually no potential for exportability.

D. GENERAL AND SPECIFIC PROJECT OBJECTIVES

1. Level I - Core Communications

a. General Objective 1

To create a statewide administrative communications network among the State Department of Education (2 sites), 52 district administrative offices, and 6 Regional Resource Centers.

(1) Descriptive Scenarios - General Objective 1

- A policy decision, new law, reporting requirement, etc., needs to be explained and communicated by DOE to the 52 district superintendents or some portion of this group. A letter/memorandum is entered into the system at DOE with coded information designating the list of individuals to receive the communication. The message is received at each of these offices during daily checks of their files.

- Information is sought from the district superintendent offices by DOE. A polling of these offices is possible by entering a message addressed to all 52 offices requesting an immediate response. By the following day the particular DOE file should contain most responses. Lists are available which show who has received the DOE communication, when each message was received, and who has responded.

- An up-to-date district-by-district accounting system can be maintained by a time-sharing computer. Regular account reporting can be handled over the communication network.

- Group conferences or planning sessions can be held in near real-time on the system. Relevant parties can all access the system in regular intervals according to a polling scheme. This scheme and relevant documentation can be included in an introductory letter stored in the files of all participants.

- The management of direct educational programming to schools or in-service training to teachers can be facilitated by the Level I.

- Information about schedules, recruiting needs, staffing needs, user input, and so forth can be disseminated quickly over the system. Student registration, record keeping, and student requests for information and materials can likewise be facilitated.

(2) Specific Objectives - General Objective 1

- Within six months of project initiation to have installed a computerized "mail-drop" network in 30 administrative sites in Alaska.

- Within eighteen months of project initiation to have tested the utilization of a computerized "mail-drop" network in up to 60 administrative sites in Alaska.

- Within three and one-half years of project initiation to have tested the utilization of a computerized "mail-drop" network in 28 pilot school sites in the Bristol Bay Region.

- Within four years of project initiation to have presented initial planning and policy recommendations for long-term state and local financial support of the computerized "mail-drop" administrative communications network.

b. General Objective 2

To establish and evaluate methods of rapid access of repositories of a wide variety of instructional materials, research documents and related materials.

(1) Descriptive Scenarios - General Objective 2

- A local school contacts their RRC by voice or mail (other than RCC #4) requesting information.
- The RRC interrogates the requestor for the purpose of focusing the request.
- The RRC searches on-site and regional resources. If none are available; then a request is made to DOE in Juneau via the administrative communications network ("mail-drop"). Additional interrogation occurs.
- The DOE identifies in-state resources in the talent bank, etc., and commences direct interrogation of the San Mateo data bank containing the abstracts of all material on micro-fiche. The interrogation is conducted through a 1200 baud terminal. The coupler in Juneau is hard-wired with a voice/data switch.
- Abstracts are identified and are printed on the Juneau terminal.
- Juneau sends mail-box message to the RRC notifying them that the abstracts are being mailed from Juneau. In addition. Juneau includes information on statewide resources.
- The RRC then requests, via the "mail-drop" system, appropriate micro-fiche or hard copy from the DOE. Delivery is by mail.

(2) Specific Objectives - General Objective 2

- Utilizing the computerized "mail-drop" network described in 1.0 and the San Mateo Educational Resources Center (SMERC) to have completed a pilot test of an educational resource identification and linkage system in 7 sites (1 DOE, 6 RRCs) within one year of project initiation.
- Within two years of project initiation to have piloted an educational resource identification and linkage system (in-state) up to 60 sites in Alaska.

- Within three and one-half years of project initiation to have tested the utilization of a facsimile hard copy transfer system linked to the computerized "mail-drop" system in 28 school sites in the Bristol Bay Region.

- Within four years of project initiation to have completed a plan and policy recommendations for state and local financial support for an educational resource identification and linkage system.

2. Level II - Intensive Pilot for Expanded Utilization

a. General Objective 1

To design and test a system for computerized diagnosis of student learning needs in the areas of reading and computation, grades 1 through 8.

(1) Descriptive Scenarios - General Objective 1

- At the beginning of the year the teacher submits the student numbers from each student folder into the computer and requests the basic skills profile for each student.

- The printout reveals that four of the students have never been evaluated and three others have not been evaluated in over six months. For these students the teacher requests a "canned" diagnostic instrument covering a wide range of objectives and the terminal prints ten copies for immediate use. Post-instructional testing will be done with each student interactive with the terminal, thereby assuring a file up-date.

- Via the terminal, the teachers request a student grouping report by skill objective in terms of failure to achieve on an objective. In addition, the teacher also receives a printout referencing local materials to each objective.

- Each student receives a copy of the skill objectives (in modified form) which he or she is expected to work toward during that school year.

- Whenever they desire, teachers provide narrative input making suggestions for improvement on the system. This input is placed in the "mail-drop" file belonging to the Department of Education manager for student assessment. Of particular interest would be validated instructional modules focused on specific objectives.

(2) Specific Objectives - General Objective 1

- Within three years of project initiation to have completed various small-scale pilot tests of a computerized student diagnosis in basic skills in selected school sites, including the Bristol Bay Region.

- Within three and one-half years of project initiation to have completed a study of feasibility of statewide expansion of the computerized student diagnosis system.

- Within four years of project initiation to have completed a plan and policy recommendations for long-term state and local financial support of a computerized student diagnosis system.

b. General Objective 2

To design and test a rural 9th and 10th grade secondary education curriculum, teacher training procedures and curriculum delivery system for students in the isolated rural villages in the Bristol Bay Region.

(1) Descriptive Scenarios - General Objective 2

- Pretaped one-way audio segments for critical course areas, selected from commercially available products in some content areas, but, more often, constructed by curriculum and production specialists to fit the needs of Alaska's rural secondary students (reflecting local input from the educators of the region).

- Interactive audio segments which allow students enrolled in a particular course region-wide access to outstanding local instructors in secondary course areas.

- Computer assisted instruction in areas where rote learning of materials is emphasized and where individualization of instruction can be provided in its most complete form.

- Access to a wide variety of instructional materials through rapid access to the SMERC repository and other resources within Alaska.

- Access to a variety of self-instructional, correspondence materials adapted to the instructional system providing access to areas of instruction not separately addressed in the project.

- One-way and two-way instructional programming and seminars for the rural teachers of the area to assist them in implementation of the project at the classroom level.

(2) Specific Objectives - General Objective 2

- Within eighteen months of project initiation to have conducted an exploratory test of utilization of at least three prototype curriculum modules via communications technology.

- Within three years of project initiation to have completed a pilot test of the delivery of selected areas of 9th and 10th grade curriculum via communications technology in the Bristol Bay Region.

- Within four years of project initiation to have field tested 9th and 10th grade rural curriculum via communications technology in the Bristol Bay Region.

- Within four years of project initiation to have implemented diffusion strategies aimed at expanded utilization of the 9th and 10th grade curriculum and delivery system in Alaskan schools outside the Bristol Bay Region.

- Within four years of project initiation to have prepared a plan and policy recommendations for long-term state and local financial support for expanded utilization of the 9th and 10th grade rural curriculum and delivery system tested in the Bristol Bay Region.

3. Dissemination & Diffusion to Achieve Post NIE Support

a. General Objective

Within four years of project initiation to have conducted diffusion strategies aimed at expanded utilization of the general system and/or successful modules.

(1) Descriptive Scenarios and Objectives

- Users of Level I core communications are provided with quarterly progress reports via the "mail-drop" system.
- As modules are developed in intensive pilot region, they are described in practitioners' terms in the monthly newspaper, Alaska Education News (distributed to every educator in the state).
- Annually, users of the core administration system provide feedback via "mail-drop" questionnaire.
- During the first two years, periodic on-site briefings of Regional Resource Center representatives and staff of State Staff Development Center are held in Bristol Bay Region.
- During the third and fourth project years, RRC and Staff Development Center representatives receive on-site diffusion training in Region #4.
- During the fourth project year, RRC representatives trained in Bristol Bay return to work in their regions to identify needs and weigh existing telecommunications alternatives against these needs.
- Annual executive and legislative briefings are held on progress and emerging state policy issues.

IV. PROCEDURES FOR PROJECT IMPLEMENTATION

A. OVERVIEW

This section provides detailed descriptions of the procedures to accomplish project objectives. The overall plan calls for the establishment of the Level I core administrative network in 30 sites within six months of project initiation. The tentative list for the first 30 sites is as follows:

- Six Regional Resource Centers
- Two Department of Education sites
- 22 Districts:

Anchorage	Ketchikan	Naknek	St. Paul
Naknek	Haines	Mt. Village	Dillingham
Angoon	Juneau	Mat-Su	St. Mary's
Cordova	Kake	Nome	Valdez
Dillingham	Kenai	Barrow	Yakutat
	Kodiak	Fairbanks	

Within eighteen months, this system will be expanded to sixty sites. Within three and one-half years the system will be extended to the pilot schools in the Bristol Bay Region.

The Level II dedicated network will be operational in the Bristol Bay pilot region within three and one-half years of project initiation. Initial design and tests of 9th grade programming will begin during the 1978-79 school year as will the small-scale pilot of the student diagnosis system. Tenth grade programming and additional testing of the student diagnosis system is scheduled to be added during the 1979-80 school year.

The following sections describe a brief background and detailed procedures for each of the following work components:

Level I

- Administrative Communications Network
- Resource Identification and Linkage

Level II

- Student Diagnosis
- Rural Secondary Education

B. LEVEL I WORK COMPONENTS

1. Background

The Level I core communications "mail-drop" network will be utilized for improving administrative communications and for identifying and accessing educational resources.

The participants in this network will initially consist of 52 District Offices, six Regional Resource Center Offices, two DOE Offices and the University of Alaska Computer Center. Network participants will be expanded to include the 28 school sites in the Bristol Bay Region during the third and fourth project years.

The basic flow of information is controlled by the "mail-drop" system on the University of Alaska computer. Messages, typically in letter or memorandum form, can be entered by any user with an active ID number, addressed to any active recipient's file. Each user periodically checks his/her file to receive messages, and can enter messages at the same time. Access to the computer system is gained through access ports in Juneau, Anchorage, and Fairbanks. The nearest access port can be reached by telephone links from on-site terminals. A centralized system of billing and disbursements will be established.

The satellite communications link will utilize both large (10 and 30 meter) and small (4.5 meter) earth stations operating in the 4 GHz - 6 GHz band. Service will be provided through the RCA spacecraft and a full range of technical services will be available. Narrow band circuits capable of handling 9600 baud, wide band radio, and video services are technically possible for the small earth stations. Communications links will be provided through existing communications carriers.

This core communications system will provide a much improved, vitally needed system for administrative communications such as the dissemination of decisions and information from DOE to the district headquarters; for the rapid polling of superintendents on decisions to be made at DOE; for communication among superintendents, principals, and teachers; for state and federal program management; and for back-up communications necessary for the implementation of other programs planned for the satellite project.

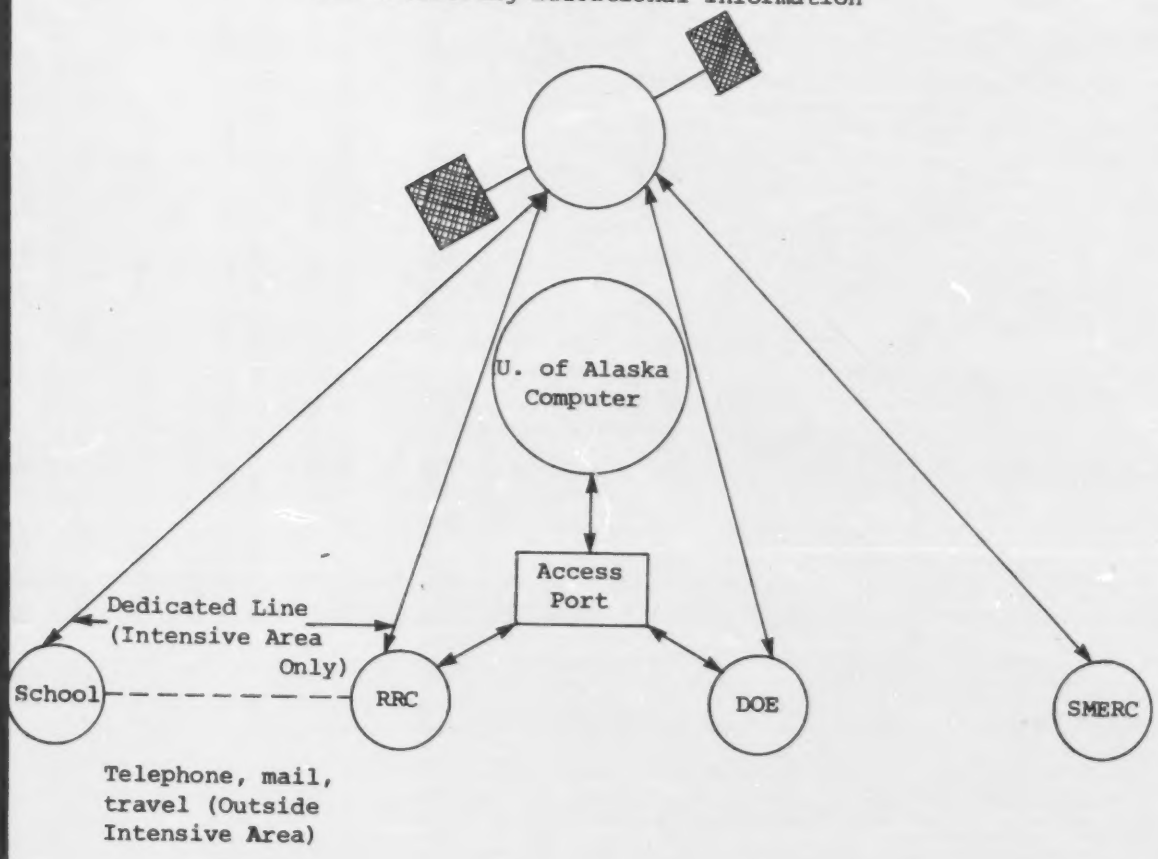
The second major use of the system will be to enhance the school districts' ability to identify and locate educational resources. Currently, the Alaska Department of Education's dissemination capacity building effort, supported by a grant from the National Institute of Education's Dissemination and Resource Group, is utilizing a system for accessing such resources which involves toll calls from district offices to the DOE offices in Juneau, then from Juneau to the San Mateo Educational Resources Center (SMERC), located in Redwood City, California. The information relay is then reversed either by toll call or by mail in the case of requests for printed documents.

The Level I core communications system will greatly accelerate this process for identifying and accessing educational resources. The Regional Resource Centers and the DOE will be linked by the computerized "mail-drop" system.

School personnel can communicate with the RRC via phone, VHF radio, mail, or can travel to the RRC. DOE communications with SMERC are via a satellite voice and data link. Results of computerized information searches, including abstracts of materials are sent from SMERC to the satellite link and then forwarded to the RRC with an automatic notification to DOE that the data request has been fulfilled.

For school personnel within the intensive area (Level II) served by the project, the communication network used in information retrieval is more efficient than that which would be found outside of this area. Both situations are depicted on the following page.

Communication Network for Ordering
and Retrieving Educational Information



Within the intensive area, the communications, transactions, and services will operate as follows:

- The local school calls the RRC #4 (CRT or voice) requesting information.
- The RRC interrogates the requestor for the purpose of focusing the request.
- The RRC searches on-site and regional resources. If none are available, then a request is made to DOE in Juneau via the administrative communications network ("mail-drop"). Additional interrogation occurs.
- The DOE identifies in-state resources in the talent bank, etc., and commences direct interrogation of the San Mateo data bank containing the abstracts of all material on micro-fiche. The interrogation is conducted through a 1200 band terminal. The coupler in Juneau is hard-wired with a voice/data switch.
- Abstracts are identified. Juneau initiates the assignment of selected abstracts to the RRC #4 file.
- Juneau sends mail-box message to Dillingham notifying them that the San Mateo computer has a "package" ready for an RRC #4 print. In addition, Juneau includes information on statewide resources.
- RRC #4, when ready, accesses a one-way link (via phone/satellite) to San Mateo.
- RRC #4 and DOE have monthly updated micro-fiche files maintained by Project A-TIP.
- RRC #4 reviews abstracts and selects those most relevant and non-redundant in terms of the village school's request.
- RRC prints from fiche reader/printer.
- RRC transmits hard-copy via facsimile to village school. Additional non-critical information is placed in U. S. mail system with average six weeks delivery time.
- RRC discusses utilization of information with village user. Communication is through voice and "mail-drop" links.

The major difference between Region #4 and the other Regions is the dedicated lines between schools and the RRC in Region #4. Outside of RRC #4, the DOE will serve as the other repository of micro-fiche and will service the remaining RRCs with fiche duplication and printing services.

Obviously, school personnel in the intensive area are served more rapidly by the information retrieval system in that many of the materials can be delivered directly from SMERC to the schools via Rapifax.

An RRC representative will receive special training to assist clients with the preparation of a request for information and with the utilization of materials delivered. The RRC representative will also assist with the preparation of orders for specific materials from SMERC. RRC personnel will assist in the interpretation of computer listings of relevant material abstracts produced at SMERC. Department of Education personnel will locate available talent and materials within the state which may be useful to the client and, if indicated, submit a coded request for an information search, by SMERC. DOE will also forward coded requests for specific materials from SMERC. SMERC is responsible for conducting computerized and manual information searches and mailing or transmitting materials specifically requested.

For clients from the intensive area, computer listings of relevant abstracts can be delivered directly to the DOE and the RRCs.

2. Equipment

The table on the following page displays the equipment installation schedule for each of the network participants. Specifications for basic communications terminals are as follows:

TABLE 1

HARDWARE INSTALLATION SCHEDULE

Location	300-Baud Acoustic-Coupled Terminals	300/1200 Baud Hard-Wire Terminals	U of A Computer (Linkage)	Mini-Computer(s)	Facsimile	Fiche Reader	Fiche Reader/ Printer	Microphones & Speakers
DOE - Juneau		6/Oct. 77	6/Oct. 77		7/Nov. 77		(currently available)	
DOE - Anchorage	6/Oct. 77		6/Oct. 77		7/Nov. 77			
RRC #4		6/Oct. 77	6/Oct. 77	24/May 79	7/Nov. 77		8/Dec. 77	27/Aug. 79
RRC - Other (5)	6/Oct. 77				(Unk.)			
SMERC (San Mateo)		6/Oct. 77						
4 Dist. Offices Bristol Bay	6/Oct. 77		6/Oct. 77		27/Aug. 79			27/Aug. 79
18 Other Dist. Central Offices	6/Oct. 77		6/Oct. 77		(Unk.)			
30 Remaining Dist. Central Offices	18/Oct. 78		18/Oct. 78	28/Sept. 79 (if linked to RRC #4)	(Unk.)			
28 Region #4 Schools	27/Aug. 79		27/Aug. 79		27/Aug. 79	27/Aug. 79		27/Aug. 79

Note: x/y, x=real-time needs in months
y=scheduled completion date given 5/1/77 start-up

93

a. Terminals

(1) Baud Rate

(a) 8 at 300

(b) 8 at 300/1200 (selective for 6 RRCs and 1 DOE sites)

(2) Display: Hard Copy and CRT

(3) Other Specifications

(a) Even Parity

(b) Half Duplex

(c) Asynchronous

(d) ASCII Character Set (96)

(e) Single Off-On Switch

(f) Ruggest Packaging

(g) Tolerance to Brown Outs and Power Surges

(h) Small Number of Swapable Circuit Boards

b. Phone Couplers

(1) 82 acoustically coupled (300 baud)

(2) 8 hard wire coupled (300/1200 selective baud rate)

c. 90 Phone Lines

d. Computer Equipment and Services

Access to University of Alaska computon points will be maintained at not more than a P5 grade of inward service.

3. Implementation Objectives & Procedures - Administrative "Mail-Drop"

a. Objective 1

Within six months of project initiation to have installed the computerized "mail-drop" network in 30 administrative sites in Alaska.

Procedures

(1) Draft specifications for printer terminals.

(2) Draft specifications for auto answering devices.

(3) Solicit bids for 1 and 2 above.

(4) Select and orient representatives of initial 30 administrative sites.

(5) Award contracts for computer system.

(6) Draft maintenance and operations manual and user's guide.

(7, Install system - 30 terminals.

(8) Train representatives of initial 30 sites in systems utilization and maintenance.

(9) Implement feasibility study of alternative uses.

b. Objective 2

Within eighteen months of project initiation to have tested the utilization of a computerized "mail-drop" network in up to 60 administrative sites.

Procedures

(1) Complete feasibility study of alternative uses.

(2) Determine installation requirements for thirty additional terminals.

(3) Revise maintenance and operations manual and user's guide based on findings from initial pilot.

(4) Install additional phone lines and terminals.

(5) Train representatives of additional 30 users in systems utilization.

(6) Implement pilot test in 60 sites.

c. Objective 3

Within three and one-half years of project initiation to have tested the utilization of the computerized "mail-drop" system

in 28 pilot school sites in the Bristol Bay Region.

Procedures

(1) Determine installation requirements for 28 pilot school sites in Bristol Bay Region.

(2) Develop maintenance and operations manual and user's guide.

(3) Install 28 terminals.

(4) Train school representatives in systems utilization.

d. Objective 4

Within four years of project initiation to have presented initial planning and policy recommendations for long-term state and local financial support of the computerized "mail-drop" system.

Procedures

(1) Compile results of pilot tests.

(2) Synthesize user reactions regarding system benefits.

(3) Conduct cost analysis for alternative uses.

(4) Prepare analysis of alternative uses, costs and potential sources of support.

(5) Prepare plan and policy recommendations.

4. Implementation Objectives and Procedures - Resource Identification

a. Objective 1

Utilizing the computerized "mail-drop" system and the San Mateo Educational Resource Center, to have conducted a pilot test of an educational resource identification and linkage system in seven sites (1 DOE, 6 RRCs) within one year of project initiation.

Procedures

(1) Negotiate and award contract to SMERC.

(2) Prepare operations manual and user's guide.

(3) Train staff in utilization.

(4) Initiate pilot test in sites.

b. Objective 2

Within two years of project initiation to have piloted an educational resource identification and linkage system in up to 60 sites in Alaska.

Procedures

(1) Revise operations manual and user's guide, based upon findings of initial pilot test.

(2) Train staff for expanded test in 60 sites.

(3) Initiate test in 60 sites.

c. Objective 3

Within three and one-half years of project initiation, to have tested the utilization of a facsimile hard copy transfer system in 28 school sites in the Bristol Bay Region.

Procedures

(1) Conduct feasibility study for Rapifax transmission.

(2) Define hardware installation and maintenance specifications for facsimile units.

(3) Solicit bids.

(4) Award lease/purchase contracts for facsimile units.

(5) Design operations manual and user's guide.

(6) Install units.

(7) Train Bristol Bay Region and DOE staff.

(8) Initiate pilot test of system.

(9) Prepare pilot test report.

d. Objective 4

Within four years of project initiation to have completed initial planning and policy recommendations for long-term financial support of an educational resource identification and linkage system.

Procedures

(1) Compile results of pilot tests.

(2) Synthesize user reactions regarding system benefits.

(3) Conduct cost analyses for alternative levels of use.

(4) Prepare plan and policy recommendations.

C. LEVEL II - INTENSIVE PILOT FOR EXPANDED UTILIZATION

1. Background

As described earlier, twenty eight school sites in the Bristol Bay Region will be included in the core communications system during the third and fourth project years. Emphasis of utilization in this intensive pilot region will be upon management and instructional support communications in geographically isolated and dispersed schools.

The absence of community services and other professional support in this rural context dictates that improved support service communications encompass a wide range of teacher needs--from teacher subsistence to consultation or students' educational and social needs.[4]

---

4 For example, recently a teacher was ill and school was closed for two weeks before the district superintendent was aware of the situation. No telephone links existed between the teacher's school and the district office.

The installation of the Level I core communications capability in the Bristol Bay Region will improve the flow and immediacy of communications among teachers, between teachers and district offices, and between teachers and the Regional Resource Center.[5]

The Bristol Bay intensive pilot effort, beyond installing a capability for improved intra-district communications and resource identification and linkage, will focus on two areas of critical need: (a) student diagnosis and (b) planning and delivering secondary education in the isolated rural villages.

2. Rural Secondary Education

Rural secondary education in Alaska has traditionally been accomplished through urban boarding schools serving students from rural areas of the state. Reaction to the social consequences arising from this arrangement resulted in recent court decisions and legislation which require districts to establish secondary programs in all communities with at least one available secondary student, no later than September 1, 1977. The provision of a comprehensive secondary education program within the village school is made difficult by the fact that such schools may have only one or two teachers. It is extremely unlikely that any one or two teachers, typically elementary level teachers, possess the range of educational knowledge and skills necessary to provide the variety of offerings required for a quality secondary level education. Further, needed materials and resources are likely to be unavailable.

A shift in the role of the village secondary teacher from conveyer of information to manager of student instruction backed up by a

---

5 Pages 84 and 85 of the previous Section (Level I) illustrated the planned interaction with the RRC through the resource identification and linkage system.

variety of resources delivered through a comprehensive tele-educational system is a possible long-range answer to several of the problems of rural secondary education in Alaska. The tele-education system envisioned for the project includes such components as audio instruction, interactional seminars and question and answer sessions, computer-assisted instruction, diagnostic testing and prescriptive instruction, supporting materials, and information systems. The instructional system will draw on and provide training to indigenous secondary instructors in order to leave in place a continuing system of rural secondary education for the Bristol Bay area. The system will produce materials, instructional systems, and communications networks which the state can build upon to provide comprehensive rural secondary education programs statewide.

3. Student Diagnosis

The small schools in rural Alaska do not have access to on-site specialized instructional support. Those professionals when available, have very large areas to cover and cannot, for the most part visit any one site more than once per year. This is especially true of specialists in the area of student diagnostics. Compounding the problem is the absence of suitable diagnostic tools, i.e., instrumentation which reflects local learning objectives and which is immediately scoreable. Individualized instruction and its corollary, diagnostic/prescriptive processes, are dependent on records of student performance. A major drawback to the manual recordkeeping systems associated with individualized instruction is that they often require an excessive amount of teacher time. A further drawback to most existing systems is that the on-site management of the records system is not of such quality that it can prevent discontinuity in either content or form.

In the Bristol Bay pilot region a system for constructing, administering, and scoring diagnostic tests will be implemented. The system will utilize the statewide Instructional Support System (SISS). This system includes a comprehensive bank of objectives and associated items in reading and computational skills (grades 1-8). Through SISS, criterion referenced tests can be generated which allow a teacher to determine whether a student has reached criterion level on a chosen set of objectives. The full capacity of the system can be realized in the intensive pilot region. A student, seated at a CRT terminal can be administered a tailor-made test of items corresponding to objectives selected by the teacher. Instant feedback can be provided to the teacher/student which shows which objectives the student has, and has not, mastered. The system will then allow for the delivery of prescriptive types of information, such as an indexing of objectives to on-site, regional and San Mateo based instructional materials.

4. Design and Implementation

The specific design of procedures, courseware, and materials for the instructional component of this project will be the responsibility of the design and implementation contractor (see proposal section on project management). In this task the contractor will obtain systematic input from local educators. The following factors (not listed in order of importance) will be considered by the contractor in this effort.

- Access to the University of Alaska computer system is provided by the Basic Administrative Communication Network.
- Use can be made of the Bristol Bay dedicated audio communication system for CAI if appropriate protocols can be developed. Packet contention schemes can facilitate the use of this system when developed. A dedicated line between RRC #4 and the Anchorage or Fairbanks computer ports will be considered.

- The PLANIT system for computer assisted instruction should be operational on the University of Alaska computer system within a year.

- A diagnostic and prescriptive computer managed instruction system will be developed and implemented. Existing school staffs must be trained to function as managers of the instructional process for students in the rural secondary education program.

- One-way audio instruction will be used as the basis of a large portion of the courses in the secondary program. These should be augmented with interactive question and answer sessions involving the instructor and students simultaneously enrolled in the course in a number of village schools.

- Outstanding local instructors will be involved in the development and implementation of the program and should typically serve as course instructors. Training and assistance will be provided to the teachers through the project. Every effort will be made to leave a residual of local expertise for continuance of the system after the completion of this project.

- The diagnostic testing system will be based on the Statewide Instructional Support System developed by DOE, district teachers and the Northwest Regional Education Laboratory.

- On-site libraries and materials collections at the secondary level may be upgraded for effective implementation of the program.

- A secondary program, not just isolated courses, must be made available to the rural secondary students. A wide range of academic and vocational courses must be offered through the overall instructional program. Previously prepared materials should be systematically reviewed and included or adapted for use where possible.

- Courseware must be made appropriate to the specific audience and yet retain an acceptable level of exportability.

- Evaluative and cost data must be systematically gathered throughout the program and periodic reports written relative to the success of each program component. A flexible approach to programming must be maintained, whereby unsuccessful or unacceptable elements can be dropped or replaced and promising new elements added.

- Local input into program development must not only be permitted, but systematically solicited. Various sources of input from the educational and non-educational community shall be included.

- The educational information systems available through the telecommunications project shall be included, where feasible, to support the educational staff and students involved in the project.

The central principle which will govern the design and testing of rural secondary education curricula and delivery systems will be that of a "user-driver" development model. This model contrasts sharply with the traditional linear model of research, development, dissemination and implementation. In the linear model, research and development "experts" conduct research, design the curriculum and delivery system and then seek to involve practitioners in implementing what the experts have designed. Recent studies of diffusion and change (Berman & McLaughlin, Fullen & Pomfret; Cheever, Neill & Quinn, Seiber) argue strongly against this traditional approach. Indeed, the findings from these studies suggest the need for a new strengthening of localism in curriculum and instruction design.

Representatives of the four districts in the Bristol Bay Region will be full partners in the development process. The mechanism for this partnership will be a subcontract with the Regional Resource Center. This subcontract will provide support to the four districts in providing staff, materials and released time to implement a series of decision processes related to the development effort.

The first step in this process will be for user representatives to assess existing program offerings, and prioritize the ninth and tenth grade program areas requiring initial development and testing.

Based upon these user-defined priorities, a component of one program area will then be selected for initial prototype development.

The Design and Installation contractor, working with staff representatives of the four districts, will define specifications for the prototype instructional module. These specifications will include the desired learning outcomes, learning activities, mode of delivery and evaluation questions and procedures.

Then technical staff working with user representatives will design and test an initial prototype with teachers in the remote villages in the Bristol Bay Region. A review session will be held upon completion of this prototype test. Purpose of this session will be to determine revisions needed in the prototype and to debrief the effectiveness of the development process.

This sequence in designing and testing a prototype will achieve two purposes: First, it will afford user representatives initial "hands-on", heavy but low risk involvement in a systematic development process. Second, it will result in a visible curriculum product which has been mutually designed by local users and "experts" from the Design and Installation Contractor's Staff. The end result will be an identification of needed revisions in the development procedures, skill development needs on the part of the users, and a set of decisions and a plan for revision of the prototype.

Technical project staff will assist the user's representatives, in analyzing proposed areas for development in terms of cost, development time required, amount of teacher retraining, and availability of existing resources. Based upon this analysis, decisions will be made by the users regarding an overall plan with developmental priorities,

event sequences, and responsibilities of technical staff and user representatives delineated.

Based upon this user defined plan on-site development will be initiated according to the schedule in the plan.

5. Implementation Objectives and Procedures - Student Diagnosis

a. Objective 1

Within three and one-half years of project initiation to have completed various small-scale pilot tests of a computerized student diagnosis in basic skills at selected school sites including the Bristol Bay Region.

Procedures

(1) Prepare user-oriented description of SISS.

(2) Conduct teacher orientation to SISS in Bristol Bay Region.

(3) Design software, hardware, installation and maintenance specifications.

(4) Design plan for small-scale pilot test of SISS utilization.

(5) Award contracts for hardware installation and maintenance.

(6) Install equipment.

(7) Develop teacher's manual for use of SISS.

(8) Train pilot teachers.

(9) Conduct pilot test.

(10) Conduct demonstration for users outside Bristol Bay Region.

(11) Prepare pilot test report.

b. Objective 2

Within three and one-half years of project initiation to have completed a study of feasibility of statewide expansion of the computerized student diagnosis system in the area of basic skills.

Procedures

(1) Analyze pilot test findings.

(2) Determine extent of statewide interest in use of SISS.

(3) Prepare cost analyses.

(4) Revise protocols and teacher's manual.

(5) Conduct expanded test and demonstration.

(6) Prepare report.

c. Objective 3

Within four years of project initiation to have completed initial planning and policy recommendations for long-term state and local financial support of a computerized student diagnosis system.

Procedures

Based upon findings of feasibility study and expanded pilot prepare alternative plans, cost estimates and policy recommendations.

6. Implementation Objectives and Procedures - Rural Secondary Education

a. Objective 1

Within one and one-half years of project initiation to have conducted an exploratory test of utilization of at least three prototype 9th and 10th grade rural curriculum modules via communications technology.

Procedures

(1) Negotiate subcontract with Bristol Bay RRC.

(2) Inventory current program offerings among 4 districts.

(3) Prioritize 9th and 10th grade program areas requiring development.

(4) Select one component of one program area for initial prototype development.

(5) Define specifications for initial prototype.

(6) Design prototype and delivery mode.

(7) Test in Dillingham and Naknek.

(8) Evaluate results of initial prototype effort.

(9) Define specifications for all program areas requiring development.

(10) Revise and test initial prototype.

(11) Design long-range development plan.

(12) Design and test at least two additional prototypes.

(13) Complete PLANIT documentation and developer guides.

(14) Conduct on-going teacher training.

b. Objective 2

Within three years of project initiation to have completed a pilot test of the delivery of selected 9th and 10th grade curriculum via communications technology.

Procedures

(1) Based upon progress made in the first year and a half, assess 9th and 10th grade program areas requiring additional development.

(2) Design comprehensive 9th and 10th grade program.

(3) Conduct pilot test of components of 9th and 10th grade program.

(4) Evaluate results.

(5) Conduct on-going teacher training.

c. Objective 3

Within four years of project initiation to have field tested developed 9th and 10th grade rural curriculum modules via communications technology in the Bristol Bay Region.

Procedures

(1) Revise 9th grade integrated curriculum and delivery system.

(2) Conduct expanded test of revised 9th grade curriculum.

(3) Integrate 10th grade program components.

(4) Conduct pilot test of integrated 10th grade curriculum and delivery system.

(5) Conduct on-going teacher training.

(6) Prepare report on findings.

(7) Conduct user demonstration.

D. MANAGEMENT AND COORDINATION

1. Project Management: Structure and Functions

The project management structure recognizes that policy, utilization and implementation decisions rest with the following established operating user agencies in Alaska.

- The State Board of Education
- The State Department of Education
- The 52 School Districts

Based upon the policy, utilization and implementation decisions made by the above agencies technical support for design,

production and installation will be the responsibility of two types of agencies:

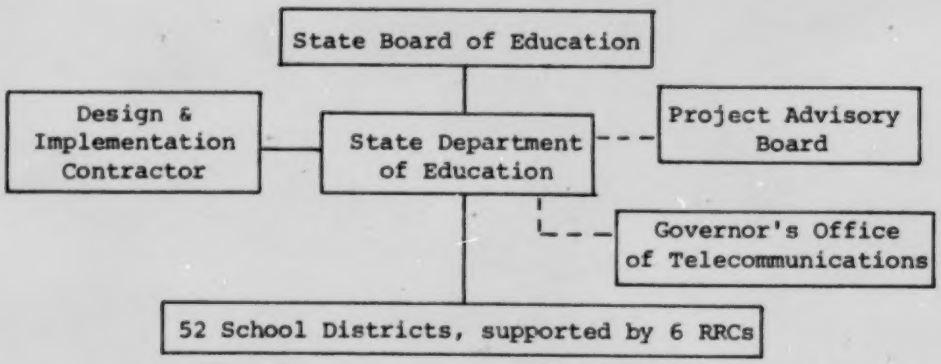
- A Design and Implementation Contractor (under supervision of DOE).
- Six Regional Resource Centers (governed by participation districts.

It is important to distinguish the policy, utilization and implementation decision-making responsibilities from technical design and production responsibilities in this management structure if the central concept of "user-driven" development and utilization is to be maintained. Such delineation of responsibilities will allow the technology to be responsive to priority user needs.

The purpose of the proposed structure is to maintain a constant two-way flow of information and communication between the policy and implementation decision makers in established agencies and those which provide technical support in carrying out these decisions.

2. Overall Structure

The overall structure can be displayed as follows:


State Board of Education
Design & Implementation Contractor
State Department of Education
Project Advisory Board
Governor's Office of Telecommunications
52 School Districts, supported by 6 RRCs

a. State Board of Education

The responsibilities of the State Board of Education are to insure that project policies and procedures are consistent with statewide policy and priorities and to approve annual and long-range project scope of work plans.

b. State Department of Education

The State Department of Education is responsible for overall project planning, monitoring and systems evaluation. Based upon advice from a Project Advisory Board, the Governor's Office of Telecommunications and the 52 school districts, the Department is responsible for setting priorities for types of utilization and implementation modes and for designing annual and long-range scope of work plans for State Board approval, and to conduct an evaluation of systems effectiveness.

The Department will have the primary responsibility for systems evaluation. Design of this evaluation will be through three-way interaction among the Department of Education, the design and implementation (D&I) contractor and district personnel. Raw data acquisition will be carried out by the D&I contractor. Major analysis will be the responsibility of the Department.

In addition, the Department is responsible for maintaining statewide interagency coordination, communications and support mechanisms, and legislative liaison.

c. Fifty-Two Local School Districts

The 52 local school districts are responsible for providing user input to the Department of Education regarding types and

modes of utilization, systems protocols for determining local levels of utilization, for determining levels of supplementary local support to maintain the systems, for identifying and communicating resource needs, and for determining the role of the Regional Resource Center in systems utilization. In addition, the school districts are responsible for providing formative and summative evaluation data to the design and implementation contractor.

Within the intensive pilot region, the four local districts (Lake and Peninsula, Bristol Bay Borough, Dillingham, Southwest Region) are responsible for providing to the design and implementation contractor decisions regarding content priorities and specifications for design and implementation of resource identification and linkage, and rural secondary education programming efforts; for utilization of the Student Diagnostic module; and for making staff and facilities available to assist in prototype development, design, pilot and field testing.

The mechanism for the involvement of these four districts in carrying out the above responsibilities will be a subcontract with the design and installation contractor. This subcontract will provide resources to the Region #4 Regional Resource Center (governed by the four districts) to carry out the decision-making responsibilities outlined above (i.e., local user identification of content priorities and specifications for the student diagnosis system and for programming for rural secondary education; for participating in prototype development; pilot and field testing). This subcontract arrangement will insure three outcomes: (a) a truly "user-driven" design and production system, (b) a test of a "capacity building"

effort wherein local skills in program development and operation are developed and maintained as close as possible to the users, and (c) the identification of the minimum data base for quality control and management.

d. Regional Resource Centers

The RRC concept is in its infancy in Alaska. The central concept of the authorization by Senate Bill No. 690 is to allow local districts the opportunity to cooperate in designing and implementing shared services in a wide variety of management and instructional efforts. The specific nature and operational style of these cooperative efforts will vary from region to region. Therefore, within the project's management structure there is no single preconceived statewide model for RRC involvement. For example, districts who choose not to become associated with an RRC will still have access to the administrative communications and resource identification and linkage system.

As the previous sections have outlined, the project will install a capacity in each of the operational RRCs for their utilization of the administrative communications systems and the resource identification and linkage systems. It should be recognized, however, that the specific inter-district procedures and protocols for district cooperation in use of these systems through the RRC will vary from region to region.

Within the intensive pilot region the RRC will play a key coordination role via the subcontract with the design and implementation subcontractor. In this case, the RRC will be the mechanism for training and support to each district in defining resource needs, in defining program priorities, materials and delivery system specifications,

and utilization and adaption of resources identified through the resource identification and utilization system.

e. Design and Implementation Contractor (Northwest Regional Educational Laboratory)

The design and implementation contractor, under performance contract with the State Department of Education, is responsible for supervision of technology installation and maintenance, for user orientation and training, for technical design, production and quality control of instructional courseware and programming (based upon priorities defined by the districts in the intensive pilot region), and for conducting internal formative monitoring and pilot and field test evaluations within the intensive pilot region.

There are seven organizational structures in which the operating management contractor can be grouped. These basic groupings are function, product, location, process, customer, time and matrix. The Educational Telecommunications for Alaska planning and design group reviewed each of these alternatives for determining the optimal structure for contracted telecommunications system management.

Because the early stages of the ETA project are not designed to produce a variety of dissimilar products, the product structure, which places various specialists working on a single product together under the same superior, was discarded.

While location or geographic groupings will play a significant role in the Project's goal of maintaining a strong user based decision-making system for the generation of educational products, the geographic organization, where RRCs and school district groupings receive training and other field services by region, will not be well

enough established until 1978 to make this structure a contender for consideration at this time.

Process structuring would be an attractive alternative if the ETA Project were producing large volume of similar products in a series of well-defined stages; products which were centrally designed by production management. In a user-driven system, these conditions are not likely to be found; hence, the process structure was discarded.

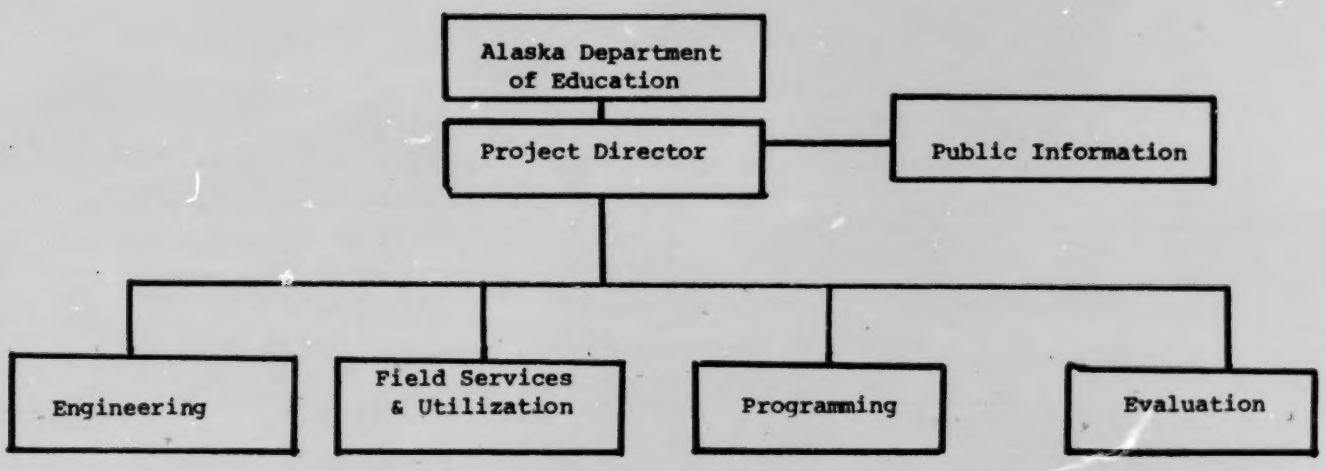
A market structure will be employed in relation to certain field service and evaluation functions described later in the organization section. Since the market structure is useful in determining user needs and expectations and in bringing about consumer acceptance that organizational construct will be visible in the field services function of the ETA Project.

The time structure does not apply significantly to this project except in the case of future programming demands which require double shifting of production facilities and personnel to meet broadcast deadlines or to achieve economy.

Finally, the matrix structure applies to expected project needs as conditions suggest the use of staff task force activity in the solution of immediate problems. The use of matrix structures is expected to be temporary.

The functional structure was selected because (1) it promotes, indeed requires, that functional goals be clearly defined, (2) it is well supported by known management-by-objectives techniques, (3) a functional structure is easily applied to a small staff which possesses complex specialities, and (4) the Alaska Department of Education is organized along functional lines, making the D&I contractor subject to the same modified MBO system.

EDUCATIONAL TELECOMMUNICATIONS IN ALASKA
DESIGN & IMPLEMENTATION CONTRACTOR



RRC #4
Field Services
Coordinators

The ETA functional organizational structure is displayed below.

(1) Operational Components

The engineering function, headed by a systems engineer will include responsibilities for the following: design, development, installation, integration and maintenance of the terrestrial system which is compatible with the satellites employed and with user locations requiring coverage. This organizational component will assess and specify the technical parameters for all operational demand requirements of the terrestrial and space segments including video communications. All major terrestrial sub-systems including computer interface components will be the design responsibility of the engineering component. Monitoring of equipment procurement, shipping, receiving, installing, and maintenance by Alascom will be a predominant function of the engineering staff.

The field services component is responsible for all training of users, orientation of the using schools and RRCs in equipment operation, classroom practice and technical production at the user level, using specialists from the engineering, programming and evaluation components and selected consultants representing training and development areas identified by the utilization component, and users. This component is responsible for needs sensing, training design and the organizational management of field services personnel in RRCs and the Education Center in Anchorage.

This component functions as the operational linkage to the field and is the major communications channel with the RRC and school district administrations. This component functions as a dual advocate--sensing and interpreting the needs of the user to Project management and the Project's needs to the schools.

The programming function of curriculum planning, instructional materials, production (print and non-print) scripting, and similar editorial functions, are the responsibilities of the Programming component. In addition, this component will be directly responsible for establishing production criteria and for initiating and maintaining quality review procedures to insure system and locally developed materials, distributed via the ETA technical system, conform to broadcast production standards and to all instructional standards specified by the Alaska Department of Education.

Using a courseware team design, the Programming component will matrix materials design production, using Utilization, Engineering and Evaluation personnel and contract consultants to produce courseware of broadcast quality. This component will be responsible for library resource and research activities using the ADOE library. Copyright screening and preparation of negotiation proposals are the responsibility of the unit.

The evaluation component is responsible for all formative evaluations of the ETA project. Staff of this component will participate with other operational components to set evaluation objectives, plan evaluation design, produce or select evaluation instruments and identify administrative constraints and options.

The evaluation component will be responsible for field administration, using the personnel of the Utilization component and field-based personnel to carry out the administration of the Evaluation events. Staff of the evaluation component will work closely with Research and Assessment personnel of the Department of Education in the design of formative and summative procedures so as to reduce and simplify the necessary collection of data and to share data processing resources.

Evaluation staff will cooperate with the ADOE in complying with Federal guidelines regarding the administration of multiple instruments.

The management component includes the Project's public information function, staffed by a public information specialist. Public information via the conventional print and electronic news organizations will be the responsibility of this function. In addition, program announcements, and general user communications about Project activities, will be handled by the public information officer. Close cooperation between the Project's P.I. functions and the ADOE's public information office will be maintained.

Program management will be accomplished using a simplified management-by-objectives design and will consist of the following sub-systems:

- A set of tasks, sub-tasks and detailed activities for all project component functions. Displays will include responsible persons, component, inter-component and inter-task dependency relationships and milestones schedules.

This design, in accordance with the ideal MBO approach, is directly related to the primary products and services identified from program goals. It will be designed to allow the monitoring of progress on specific objectives or tasks which relate to program purposes.

- A budgetary and financial control system which allows for the monitoring of costs and cost exceptions, by component, selected sub-tasks and program generated account codes. The cost control system in conjunction with the task/sub-task network, is a simplified PERT-COST network since the costs will be monitored for a selected sub-set of all sub-tasks.

- A formal system of management reviews, meetings and reports designed to integrate the information from the task sub-system and the financial control sub-system mentioned in (1) and (2) above. Disciplined program review will be required for effective resource allocation and management control decisions.

3. Decision-Making Processes in Management

The contractor, supplied by backbone system components similar to those located at the user sites, will be in frequent and regular contact with field-test sites, users similarly equipped and with the technical and governmental participants in the Project. A system of early warning of problems will be inaugurated for management's decision-making purposes. This system of daily contact with the user will be planned and the system will be staffed by the Utilization component staff.

Local and regional agencies will form advisory groups made up of students, professional staff and school board members for the purposes of providing user feedback periodically. In addition, programs produced for use in the project will be developed using a script-review to segment production-review production cycle so that user input to

program production begins with conceptualizing the need and continues through the technical aspects of programming.

All courseware produced will be subject to quality assurance standards set by professional practitioners and ratified by users. This quality assurance procedure will require that all content distributed in any part of the system must meet broadcast standards if that courseware is to be archived for repeat use anywhere else on the system. A step-by-step procedure for field testing the elaborate courseware and documenting results of use will be accomplished both in the field with users at the point of use and by an in-house review panel made up of state level educational experts, using definitive review instrumentation for the critical examination of courseware.

E. PROJECT MILESTONES

Milestones by work component for the four and one-half year project are displayed on the following chart.

V. EVALUATION

A. FORMATIVE EVALUATION

Evaluation and implementation are related in important ways during the design, prototype, field trial and implementation stages of the four and one-half year project. User acceptance of technical and educational procedures is a major benchmark in making management decisions about program features. Equipment and system reliability as measured against several environmental and operational factors is a significant feature in the determination of long-term feasibility of the program. Program costs are, similarly, major determiners in assessing program feasibility and in making decisions about spread of the practices which this program seeks to implement in selected locations in Alaska.

Formative evaluation will be used, then, as an instrument in making midcourse program decisions. It will furnish information to project management according to management's modified PERT-COST MBO system, using accepted instrument development, data gathering, analysis and reporting procedures which will be developed in the several design phases of the project. The formative evaluation system will be employed in three major program areas: (1) technical, both technical system performance and terminal (site) equipment performance and (2) educational performance, both process and outcome, as these can be reasonably assessed without serious intervention in the educational process and (3) user acceptance as measured by a variety of structured responses of users and by the observation of user behavior as this behavior has discernable effects on the system.

The formative evaluation plan will be devised by the Design and Implementation Contractor, in company with the Alaska Department of Education, the Office of Telecommunications, the public service carrier, RCA Alascom, and principal users groups in the state. Administration field trials and instrument validation will be conducted with selected users in order to determine the operational reasonableness of data collection. It is the intention of the Design and Implementation Contractor to keep data collection at a minimum, consistent with the need for data-based decision making and public reporting.

1. Technical Evaluation (Formative)

Technical evaluation of the Alaska system will be conducted against the operational demand requirements specified by the system component manufacturers, public carrier, systems engineers and users. Operational demand requirements will also include specifications for support systems operation such as power, physical location of equipment and physical facility appropriateness to operation desired. Evaluation of the technical system will be accomplished by the Design and Implementation Contractor's evaluation staff and engineering staff, and will measure delivered signal quality against the benchmark derived by the engineering staff, an audio signal measure similar to the universally accepted TASO 1 video standard commonly employed in the broadcast industry. Performance of system components will be judged in relation to signal quality and system reliability using the standard TASO 1 measure across the following components:

- space segment
- up link - down link
- line carriers, including nodal entrance transactions

- switching and summing networks, including storage and analysis
- user terminals

Engineering staff will monitor the installation of systems equipment and the delivery of terminal components, measuring installation/delivery events against manufacturer, and installer schedules for the completion of installation and delivery of equipment. The maintenance of project operations will be evaluated for the effects of schedule slippage caused by late installation/arrival of system components. Project history will be recorded, using such information and a critical review of major project events will be conducted. This will result in a report, prepared by the Design and Installation Contractor and furnished to the Department of Education which will be used by that agency for decision making during subsequent project periods.

The common carrier and participating equipment suppliers will, according to individual contract/purchase agreements, provide for maintenance of equipment procured from them, or provide necessary training to local technical or operational personnel so that equipment can be maintained in a manner consistent with minimum failure and minimum service interruption. The evaluation personnel will assist the engineering staff to maintain a complete record of maintenance events, determine and record variations from an agreed-upon maintenance schedule and record and report the magnitude and nature of the problem or use interruption or delay resulting from such variances in maintenance schedules. An analysis of maintenance's effect on program and system reliability will be accomplished and an interim and annual report made to the Department of Education. The monitoring and reporting activity

will pertain to both systems components and to local terminal equipment which, in the opinion of the Design and Implementation Contractor, are critical to the smooth operation of the project.

Reporting procedures will be devised by the engineering and evaluation staff of the Design and Implementation Contractor to monitor and assess the reliability of the communications system and will be used as a beginning standard measure during the conduct of the pre-operational test plan.

The following will be examined and recorded for decision making purposes and, as a baseline data mark for summative evaluation purposes:

- An operational plan and instrumentation for
  - locally conducted, periodic operational readiness checks which will include the communications system and its terminal components. Included are signal quality checks. Analysis of signal quality will be measured against conditions of:
    - temperature
    - weather (rain, snow, icing conditions, fog, wind velocity)
    - time (Zulu, at times of local useage)
    - location (by official site designation)
- Measures of operational proficiency of local site operators will be done periodically for
  - measuring operational site proficiency in following network protocol
  - providing reliable measures of operational conditions at the local site ("go-no-go" decisions made in relation to TASO 1 type performance standards)
  - assessing local operator's ability to maintain and implement system broadcast schedules, such as mail-drop computer conferencing

- assessing minimum technical competency required for terminal operation

- assessing attainment of objectives in site operator training as specified in pre-operational readiness plan

- assessing local site operator equipment maintenance

- evaluating site operator acceptance of the operational role of equipment operation

- analyzing training costs compared to variations in entry technical competency of site operator personnel

- assessment of the utility of emergency reporting systems as specified in the pre-operational test plan

• Assessment of technical reliability of the system

- using periodic (suggested daily) status reports prepared and transmitted by site operators, system "down time" and marginal quality operation of system components will be examined

- using site status reports, local terminal component failure and marginal quality signal reception will be analyzed to determine useage interruptions and local non-system "down time"

2. Educational Evaluation (formative)

Evaluation will be informal and unobtrusive. Specific procedures for assessment will be produced by the evaluation staff of the Design and Implementation Contractor which will answer at least the following questions:

- Is the system or product appropriate for the intended audience?
- Does the system or product make optimal use of available telecommunications technology?
- Is the implementation of the system or product feasible?
- Is the system or product likely to be cost-effective?

- Are the objectives for the system or product clearly stated?
- Have adequate support and back-up systems been identified?
- Have adequate procedures for materials distribution been developed?
- Is the required training effective?
- Are the planned organizational structures and relationships adequate for the task?
- Have necessary feedback procedures been established?
- What modifications are indicated by a field-test of the system or product?
- Based on the full-scale pilot study is the system or product effective?
- Based on the full-scale pilot study, was the organizational structure sufficient?
- What is the cost of implementing the system or delivering the product?

3. User Acceptance Evaluation (formative)

The users are defined to be the local, regional and state participant and decision makers in Alaska. Users are school patrons, students, teachers, local school board members, regional resource center governing boards, administrators and staff, state education agency and state professional organization members and lawmakers.

Measures of user acceptance will be tailored to these various users, and pre-post administrations of instruments and validating observations will be made by the Contractor's evaluation staff. Such questions as the following will be answered by acceptance evaluation.

- Was the educational product acceptable to the intended audience?
  - CAI 10th grade math program?

- superintendents' computer conference on House Bill 3048?

- RRC director's request for and receipt of educational data involving SMERC?

- Teachers' (authors') manual for applying the PLANIT interface language?

- etc.

- Was the method of providing the educational product acceptable to the intended audience?

  - high-speed facsimile acquisition of educational information vs CRT display?

  - 10th grade mathematics instruction via CAI for 70% of students' class time vs local teacher implemented instruction?

  - mail-drop computer conferencing for superintendent's response to request from the state commissioner vs personal letter response or telephone call?

  - etc,

- Was the process used in making the decisions about the program acceptable?

  - were all those persons involved who should have been involved, given the environment in which the project is operating?

  - was the time line for decision making appropriate?

  - were those most affected by the decision involved appropriately at both strategy and tactical levels in decision making?

  - were the results of the decision made known to those affected in appropriate and timely ways?

- Are the costs of delivering the product to the intended audience appropriate at this time in the state?

  - is spread-of-practice feasible, given the present and projected costs of the program or program feature?

  - are the costs of the program feature within the costs forecasts of the executive and legislative planning/budgeting offices?

- are the costs of the program feature clearly supportable by the users through conventional revenue channels or appropriate cost assignment?

- would your district request to participate in this program feature if the costs were:

  50% of present costs

  75% of present costs

  as presently specified?

  25% greater than present?

  50% greater than present?

4. Formative Evaluation Design Specifications

- Needs information and audience profiles will be obtained to allow for the accurate targeting of materials and procedures to be developed.

- Careful statements of objectives will be obtained for each component and reviewed by appropriate user groups.

- Evaluation personnel will work closely with the development teams, providing timely and useful information relative to product development.

- Materials, systems, and communications equipment will be field tested on a small-scale prior to implementation throughout the Level I or Level II systems.

- Small-scale comparative field studies will be conducted to allow for optimal utilization decisions.

- Cost projections will be obtained for each component to assure the ultimate affordability of products and systems.

B. SUMMATIVE EVALUATION

The Alaska Department of Education will conduct summative evaluation using, but not limited to, the formative data gathered by the Design and Implementation Contractor. The Department of Education will, in addition, evaluate the performance of its Design and Implementation Contractor.

Specific procedures will be produced by the Department of Education for preparing instrumentation, administering the data collection, analyzing the data and reporting the results to appropriate agencies and persons, including the Institute.

The end-of-project evaluation will answer at least the following questions which concern the overall systems developed in the project:

- How effective was each of the components in accomplishing the stated objectives?
- What are the attitudes of users, participants, and the community about the systems and products?
- Is the cost of implementing each system or product justified by the observed effect considering the available or possible solutions to the problem?
- Is the statewide implementation of the systems and products feasible?

1. Summative Evaluation Design Specifications

The design of the summative evaluation is the joint responsibility of DOE project management and the Design and Implementation Contractor. The management and final reporting of the summative evaluation results is the responsibility of DOE project management. The design specifications follow:

- Instrumentation will be developed to measure pre and post cognitive and affective effects, attitudes, and user acceptability.
- Baseline data will be collected.
- Project data will be collected using a variety of formal and informal measurement techniques and in-depth on-site observations.
- Procedures will be developed and implemented for systematically obtaining relevant cost data.
- All systems, procedures, and products will be fully documented.

- Project representatives will be trained as data collectors.

- Data will be collected and stored in a comprehensive data bank. Procedures for entering data, cleaning and maintaining data files and regular data analyses shall be established early in the project.

- Appropriate data and cost analyses shall be conducted periodically.

- Reports of data analyses shall be produced for project management, the Board of Education, the National Institute of Education, local participants, etc. In each case, the information shall be conveyed in a timely, appropriate, and understandable manner.

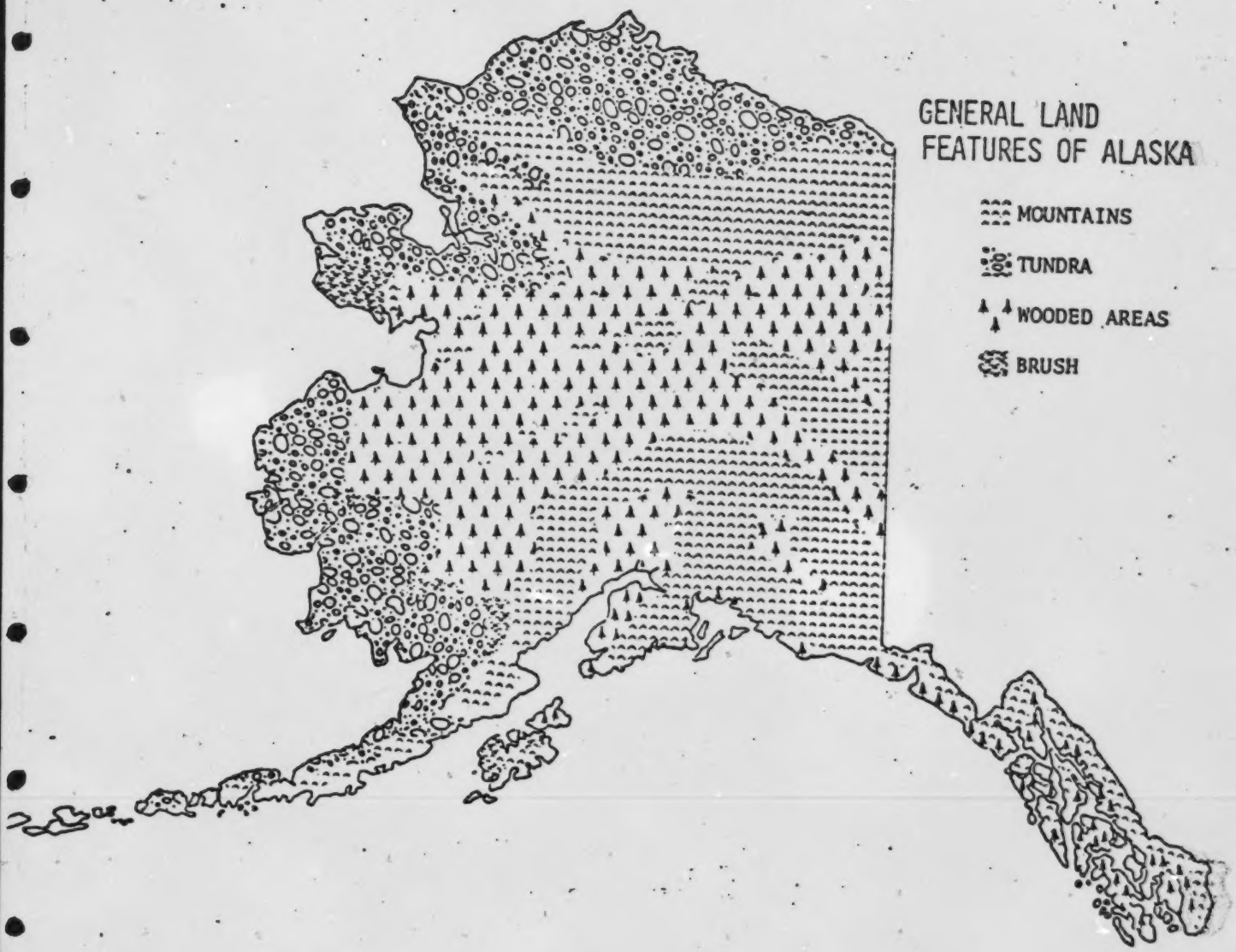
APPENDICES

POPULATION AND DENSITY

	Communities w/ populations over 25	Estimated population*	% of Total state population	Estimated square miles	Density per sq. mi.
REGIONS					
1. SOUTHCENTRAL	73	236,578	58.5	115,000	2.06
2. Aleutian Chain and Kodiak (excluding Anchorage)		(58,761)	(15.0)	(113,500)	(0.52)
2. WESTERN	55	15,581	19.0	88,500	0.18
3. BRISTOL BAY	30	5,761	1.0	45,000	0.13
4. INTERIOR	53	85,068	21.0	240,000	0.35
(excluding Fairbanks)		(29,551)	(7.0)	(232,500)	(0.13)
5. SOUTHEAST	42	50,438	12.5	43,000	1.17
(excluding Juneau)		(32,724)	(8.0)	(39,900)	(0.82)
6. NORTHWEST	28	11,208	3.0	55,000	0.20
7. Arctic					
TOTAL	281	404,634	100.0	586,500	0.69
TOTAL EXCLUDING 3 MAJOR URBAN AREAS	279	153,586	62.5	574,400	0.27

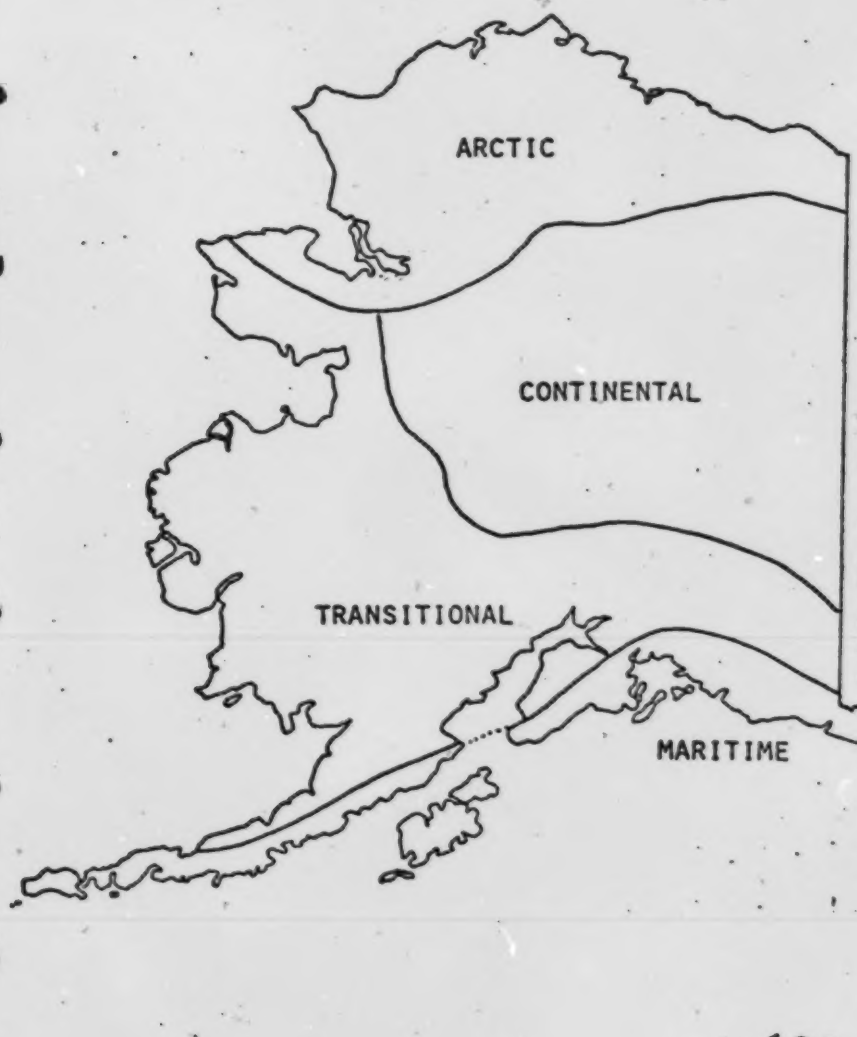
* Alaska Dept. of Labor
"Current Population Estimates by Census Division"
July 1,1975

MAJOR CULTURAL GROUPS IN ALASKA


GENERAL LAND
FEATURES OF ALASKA
MOUNTAINS
TUNDRA
WOODED AREAS
BRUSH

'IMATE

Alaska has four climatic zones. The maritime zone extends up along the Southeastern panhandle, along the Southcentral coast to the Aleutians. It is characterized by heavy rain and snow, high cloud and fog frequency, high humidity and a relatively narrow temperature range. Winters are mild, but wet. The transitional zone extends inland from the Southcentral coast, running west from the Canada border through the Yukon-Kuskokwim delta and the Seward Peninsula in Western Alaska. This is characterized by colder temperatures, less precipitation and cloudiness, and lower humidity. The continental zone covers the Interior Alaska plateau, with extreme temperature variations from summer to winter, and low humidity. The Arctic zone extends along Alaska's North Slope, the Brooks Range and parts of the Kotzebue and northern Seward Peninsula area. Winter temperatures are extreme. High winds are common. Summers are cool and often cloudy, due to the maritime influence of open waters in the Beaufort and Chukchi Seas.



CLIMATE ZONES IN ALASKA

ARCTIC-

Average July temperature = 39.1
Average December temperature = -11.2
Average annual precipitation = 7 inches

CONTINENTAL-

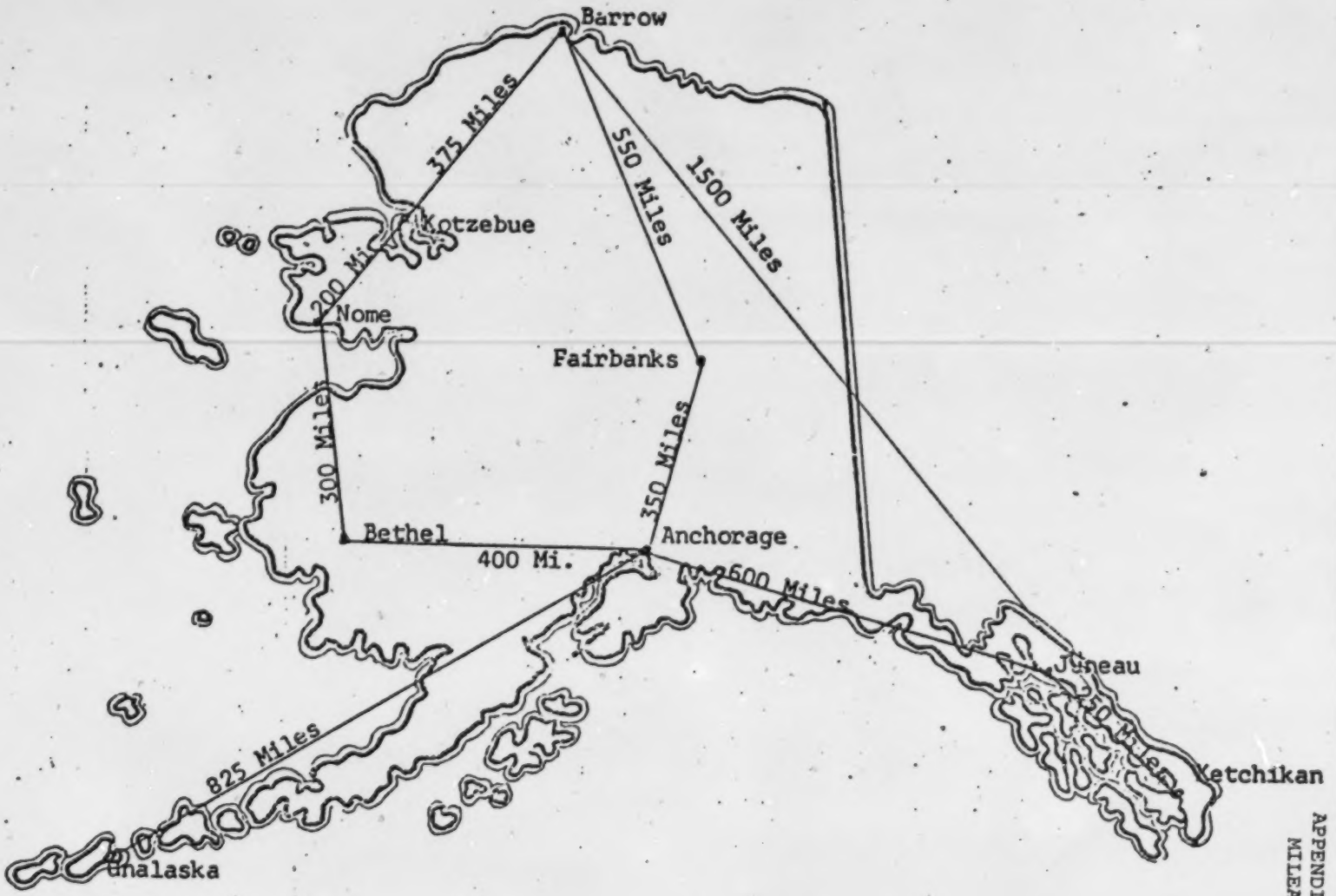
Average July temperature = 58.2
Average December temperature = -7.7
Average annual precipitation = 15 inches

TRANSITIONAL-

Average July temperature = 58.2
Average December temperature = 13.5
Average annual precipitation = 17 inches

MARITIME-

Average July temperature = 52.3
Average December temperature = 28.4
Average annual precipitation = 65 inches



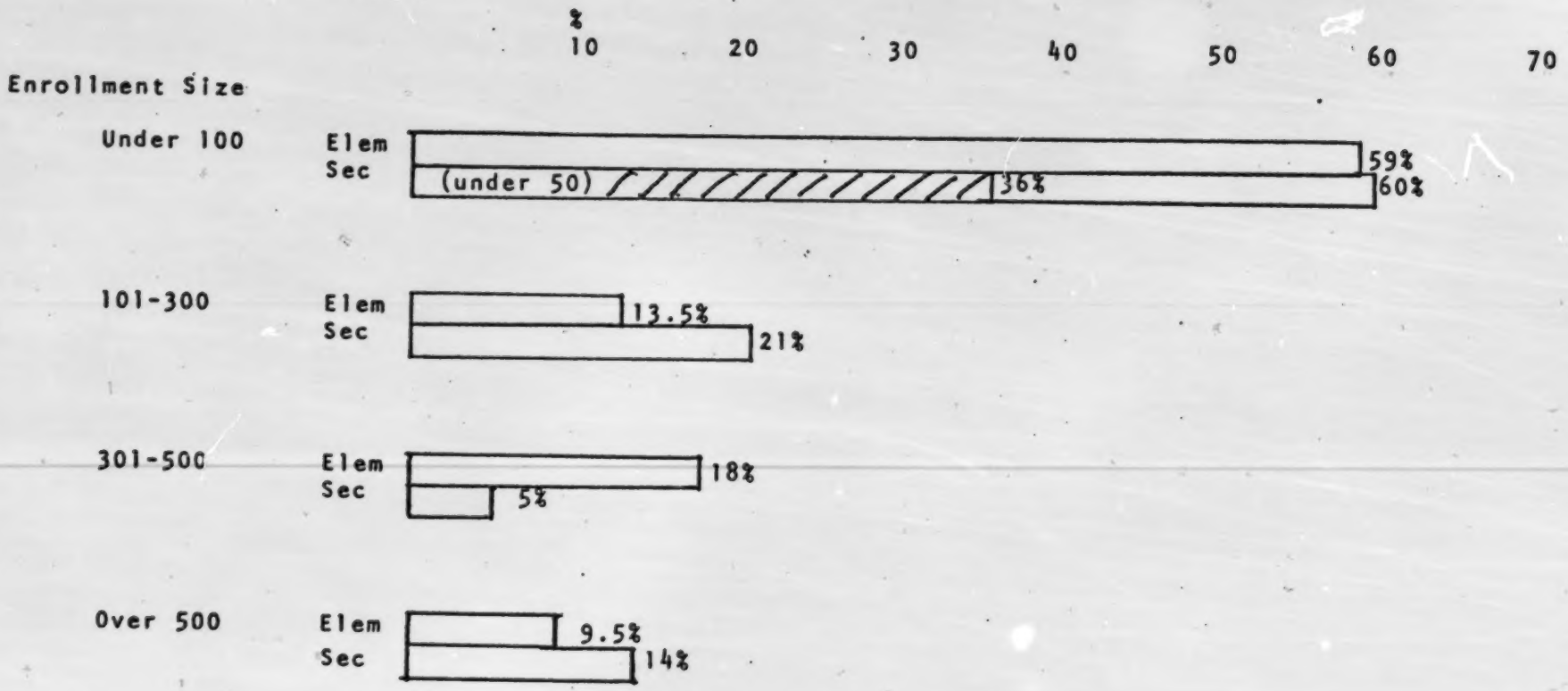
APPENDIX A.5
MILEAGE

SCHOOL TOTALS AND SIZE BREAKDOWNS
1975-1976

	TOTAL # SCHOOLS		TOTAL ENROLLM.		ELEMENTARY				SECONDARY			
	Elem	Sec	Elem	Sec	Under 100	101-300	301-500	Over 500	Under 100	101-300	301-500	Over 500
1. SOUTHCENTRAL	107	32	32,000	17,500	33	14	45	15	15	7	2	8
Aleutians	12	5	800	400	10	1	1	-0-	4	1	-0-	-0-
Kodiak	11	1	1,200	800	7	-0-	4	-0-	-0-	-0-	-0-	1
TOTAL	130	38	34,000	18,800	50	15	50	15	19	8	2	9
2. WESTERN	46	5	3,500	700	36	9	-0-	1	4	-0-	-0-	1
3. NORTHWEST	28	10	2,100	700	23	4	-0-	1	7	3	-0-	-0-
4. BRISTOL BAY	27	8	1,000	500	26	1	-0-	-0-	6	2	-0-	-0-
5. INTERIOR	62	26	11,500	5,000	38	10	4	10	17	4	2	3
6. SOUTHEAST	53	17	9,000	3,500	30	8	9	6	9	5	1	2
TOTALS	346	104	61,100	29,100	203	47	63	33	62	22	5	15
Percent					59%	13.5%	18%	9.5%	60%	21%	5%	14%
Private & Denom.	17	10	1,400	600	12	4	1	-0-	7	3	-0-	-0-
STATE TOTALS	363	114	62,500	29,700	215	51	64	33	69	25	5	15

APPENDIX A.6

SUMMARY OF ALASKAN SCHOOL SIZE



SCHOOL TOTALS AND SIZE BREAKDOWNS
1975-1976

	% of TOTAL # SCHOOLS	% of TOTAL STATE ENROLLMENT
1. SOUTHCENTRAL	29	54
Aleutians	3.5	1
Kodiak	2.5	2
TOTAL	35	57
2. WESTERN	11	4.5
3. NORTHWEST	8	3
4. BRISTOL BAY	7	2
5. INTERIOR	18	18
6. SOUTHEAST	15	13.5
TOTALS	94	98
Private & Denom.	6	2
STATE TOTALS	100	100

SUMMARY ALL SCHOOLS
1975-76

School/ District	Pre-El. & K	1	2	3	4	5	6	7	8	9	10	11	12	Sp.Ed Ung.	Elem	Sec.	Total
CITY AND BOROUGHS	6,104	6,215	5,619	5,800	5,867	6,029	6,536	6,672	6,630	6,304	5,647	4,872	3,319	1,632	43,941	33,305	77,246
REAA'S	423	722	680	761	801	862	861	858	789	717	575	405	228		5,895	2,787	8,682
TOTAL Public	6,527	6,937	6,299	6,561	6,668	6,891	7,397	7,530	7,419	7,021	6,222	5,277	3,547	1,632	49,836	36,092	85,928
Private & Denominational	323	171	145	132	139	126	116	134	98	192	172	108	87	16	1,369	590	1,959
Bureau of Indian Affairs	203	444	382	460	507	413	421	401	399	202	101	141	98	55	3,703	524	4,227
STATE TOTALS	7,053	7,552	6,826	7,153	7,314	7,430	7,934	8,065	7,916	7,415	6,495	5,526	3,732	1,703	54,908	37,206	92,114

APPENDIX A.9

PROFESSIONAL PERSONNEL 1975-1976

	Supt. & Asst.	Principals & Other Instr.	C/R Teachers Elem.	C/R Teachers Sec.	Total C/R	Instr. Staff	Total Prof. Personnel
ity & Borough	45	475	2260	1854	4114	4589	4634
EAA's	14	55	415	197	612	667	681
OTAL PUBLIC	59	530	2675	2051	4726	5256	5315
.I.A.							253
rivate & Denom.							131
OTAL							5699

Results of Department of Education Planning and Evaluation Survey

RESULTS OF

DEPARTMENT OF EDUCATION

PLANNING AND EVALUATION SURVEY

prepared by

Planning and Research
Department of Education
Pouch F
Juneau, Alaska 99811

PREFACE

In April, 1976 the office of Planning and Research within the Department of Education conducted this survey. The response received from Alaskan educators was most productive and informative. The candid responses have provided us with the data to help determine what services we should offer and how we can best provide them. The results will be used to help us plan our future directions and to better work together with the educators of Alaska.

Marshall L. Lind,
Commissioner of Education

BACKGROUND INFORMATION

In February of 1976 Commissioner of Education, Dr. Marshall Lind sought the opinions of local school people throughout Alaska as to the services and problems his office should be considering. These opinions were solicited with a "planning and evaluation survey", a copy of which is attached in Appendix A.

Approximately 2,370 surveys were mailed to teachers, administrators and specialists in all regions of the State. Slightly more than 860 were returned (36 percent). Of those returned, 77.7 percent were from teachers, 14.3 percent from principals and principal teachers, 4.7 percent from superintendents, and less than 3.5 percent from specialists.

GENERAL RESULTS

The survey results support several broad conclusions about educators' views of the Department of Education. Since 77.7 percent of the respondents were teachers, teachers' opinions are dominant in the results. These broad conclusions, however, are also generally supported by the responses of the educators in the other categories surveyed.

The Department of Education should:

- provide leadership in establishing and maintaining statewide goals, needs and priorities;
- identify and disseminate educational information, media resources and promising practices;
- examine and improve certification procedures;
- provide inservice training, especially through regional sessions;
- investigate alternate means of funding schools;
- improve communications (with local schools, both formal and informal);
- maintain support and emphasis on the basic skill areas, especially reading;
- develop new programs and curriculum and disseminate information about them (especially programs in careers, thinking skills and special education for the gifted).

SURVEY VALIDITY

Do the results represent the educators of Alaska? Yes. This short affirmative answer is based on the following facts.

A. Over 36 percent of the questionnaires were returned with no follow-up procedures. (It might be noted that the Montana State Education Agency received about the same amount in a similar survey and the Iowa SEA received less than 10% using a follow-up procedure).

B. The percentage of total return in each geographical area closely approximated the percentage of the total population of educators in those areas. The only exception was a relatively small response from the interior. The total response was:

1. South Central - 61.0%
2. Western - 8.0%
3. Northwest - 4.4%
4. Bristol Bay - 3.4%
5. Interior - 3.0%
6. Southeast - 19.0%
7. Aleutian Chain - 1.0%

C. The percentage of total return from each of the four district sizes approximates the percentage of the total population of educators in those districts. The total return was:

1. Anchorage - 30.6%
2. 1,000 - 9,000 - 39.0%
3. 400 - 999 - 11.3%
4. 1 - 399 - 19.1%

D. The percentage of total return from each of the four occupational groups closely approximates the percentage of the total population of educators in these groups. The total return was:

1. Superintendents - 4.7%
2. Principal or principal teachers - 14.3%
3. Teachers - 77.7%
4. Others - 3.4%

SUMMARY OF RESULTS IN EACH SURVEY SECTION

SECTION 1

Instructions with the first section asked respondents to rate whether each of twenty-five listed services should be provided by the Department of Education. The number in parenthesis corresponds with the number of that item on the survey instrument (See Appendix A).

The overwhelming consensus was that the D.O.E. should

- "establish and maintain statewide goals for education (4),"
- "identify and disseminate information about promising programs (8),"
- "provide grant application assistance to local districts and/or regional resource centers (14)" and
- "investigate alternate means of funding schools (24)."

Also rated of high importance was the idea that the D.O.E. should

- "develop and administer a statewide educational information system (9),"
- "provide leadership in the development of standards for school accreditation (15),"
- "provide assistance to teacher training institutions in the design and development of competency-based training programs (22)" and
- "provide media resource support to district programs (23)."

None of the services listed in the first section of the survey was so low to indicate that the D.O.E. should avoid providing it. However the following services were considered of little importance by the majority of those responding,

- "provide evaluation assistance to local districts and/or regional resource centers (3),"
- "seek greater parent and community participation at all levels of educational decision-making (11),"
- "develop a student assessment program based on criterion referenced testing (16),"
- "provide assistance to local districts in the design and implementation of staff evaluation programs (18)" and
- "provide for evaluation of district programs (20)."

SECTION II

Section II listed eight possible ways in which the Department of Education could provide "consultative, leadership and administrative services". Respondents were asked to indicate whether each should be employed.

The greatest agreement in favor of any one method was for

- "sponsorship or co-sponsorship of local and/or regional workshops, training sessions, meetings (2)."

Eighty-one percent of the respondents agreed that such meetings should be provided.

Four other methods were favored:

- "sponsorship of statewide conferences (3),"
- "systematic formal communication between the Department and local districts (4),"
- "coordinate the delivery of services through regional resource centers (7)" and
- "more frequent informal communications between the Department and local districts (8)."

The remaining methods received "yes" votes from less than half of the respondents.

- "increased on-site visitation by the Department of Education staff (1),"
- "expanded program audit functions of the Department of Education (5)" and
- "regionalization of the Department of Education's services (6)."

SECTION III

In Section III respondents were asked to rate whether each of eight "problems" listed were "encountered in working with the Department of Education."

All eight of the "problems" stated were rated as occuring frequently enough to be of concern. It should also be pointed out that from 12 to 19% of the teachers did not respond to these items because of their lack of any contact or knowledge of the Department. The problem areas in order of "frequently a problem" are:

- "insufficient knowledge of legislative amendments and new laws (8),"
- "insufficient knowledge of whom to contact for a specific purpose (7),"
- "absence of clear and current program administration guidelines from the Department of Education (5),"
- "calendar deadline conflicts, insufficient lead time to comply with the Department's requests (2),"

- "difficulty in reaching appropriate personnel due to their travel, meetings, other commitments (6),"
- "inconsistent responses from the Department of Education staff (4)" and
- "specific requests for assistance are not answered by Department personnel (3),"
- "duplication or overlapping of requests and/or requirements (reports, inventories, enrollment, census, etc.) (1)."

SECTION IV

Twenty-five topics were listed in Section IV; respondents were asked to rate the importance of each as an area which should "receive the attention, energies and resources of the Department of Education over the next few years."

The two items receiving ratings of great importance were:

- "continued focus on programs of basic skills (reading, math, science, language arts, social science) (5)" and
- "increased development of programs for better reading achievement at all grades (6)."

Ten items received strong ratings of importance. In order of rating they were:

- "continued development of programs for identified areas of need (2),"
- "expansion of programs for occupation awareness and preparation (career education at all levels, expanded vocational education and preparation) (4),"
- "greater emphasis on the development of skill programs for continued learning (problem solving, creative thinking, adjusting to new information) (3),"
- "development of a combined funding approach to educational programs (flexibility for developing programs in accordance with needs at both state and local levels) (12),"
- "closer work with districts in proposing lobbying for state legislation beneficial to education (16),"
- "expansion of efforts to promote continuous staff development activities for professional personnel at all levels (regional workshops, statewide conferences, taskforce assistance) (17),"
- "increase development of special education programs (educationally disadvantaged, gifted) (25),"
- "planning for ways to unite educational research with practice (development of an educational information system, identification of promising programs) (19),"
- "emphasis on the development of programs in human skills (social living, emotional

growth, human relations, interpersonal process skills, personal values, adjustment to change) (7),"

- "consolidation of services across all age levels based on developmental needs rather than grade level structures (13)."

Twelve of the items were rated as **not** being important. They were in order of decreasing importance:

- "emphasis on the development of programs for optional achievement of individual learners (nongraded levels, multi-ages grouping, individualized instruction, prescriptive teaching) (10),"
- "examination of current requirements, practices and procedures for preparation and certification of school personnel and development of alternative approaches (23),"
- "development of better planning and evaluation capabilities in local school districts. (Assistance in curriculum planning, project evaluation, staff evaluation) (18),"
- "greater development of the arts and humanities programs (8),"
- "increased emphasis of early childhood education programs (9),"
- "development of a broader range of curricular programs ("more relevant" programs in tune with student and societal needs) (11),"
- "expansion of statewide linkages and systems for inter-level communications (local/regional/state, institutions of higher education) (20),"
- "development of alternative approaches and means to bring about effective organization of Alaska's school districts (14),"
- "exploration of alternative forms of school organization (alternative schools, open school, year-round school, compulsory education, performance contracting) (22),"
- "expanded development of programs which are more responsive to specific needs of native students (bilingual, cross cultural) (1),"
- "planning for greater involvement of parents and the community in making decisions at local school levels (14),"
- "placement of greater emphasis on developing accountability models for all levels of education (needs assessment, comprehensive educational plans, development of goals and objectives, program development, program evaluation) (15)."

Only one of the items received a rating which would indicate that the D.O.E. should not work in that area. This was, "Revision of all curricular programs, (21)." Since interest was expressed in related topics dealing with new curricula and programs, one might assume that the rating for no. 21 was an indication that the D.O.E. should not revise curricula in isolation, nor from a standpoint of adapting new mandatory programs.

DIFFERENCES IN RESULTS AMONG SEPARATE RESPONDENT GROUPS

Respondents to the survey were identified by (1) occupational position, (2) size of school district, (3) geographic region, and (4) dollars spent per average daily membership. Discussions follow of the differences apparent in the responses of these groups.

OCCUPATIONAL POSITION

People holding different positions disagreed with each other much more frequently than did people in different size school districts, different geographical regions, or different categories of dollars spent/average daily membership. The section and item number on the survey instrument are shown in parenthesis. (See Appendix A)

Four occupational positions were compared:

1. Superintendent
2. Principal or Principal teacher
3. Teacher
4. Other (specialists, etc.)

A. School superintendents were 4.7 percent of the group responding. As a group, the superintendents were most in favor of the D.O.E.

- providing program consultation (I-1)
- providing management assistance (I-13)
- developing a student assessment program (I-16)
- providing an assessment of educational statutes (I-25)
- sponsoring statewide conferences (II-3)

The superintendents were less supportive than other respondents on the D.O.E.

- conducting in-service training (I-17)
- expanding program audit functions (II-5)
- regionalizing services (II-6)
- coordinating services through regional resource centers (II-7)

increasing special education programs (IV-25)

The superintendents encountered less problems in working with the D.O.E. than all other respondents (Section III).

B. People classified as principal or principal teacher accounted for 14.3 percent of the respondents. Specifically the principals saw less value than other groups in the D.O.E.

- providing program consultation (I-1)
- providing administrative assistance (I-13)
- developing a student assessment program (I-16)
- providing assessment of educational statutes (I-25)

Principals expressed a greater need than other groups for the D.O.E. to

- conduct in-service training (I-17)
- coordinate services through regional resource centers (II-7)
- provide knowledge of whom to contact for services (III-8)
- develop special education program (IV-25)

C. Teachers comprised 77.7 percent of the survey respondents. Teacher's opinions were significantly different from other respondent's opinions on these items:

- teachers assigned less importance to the D.O.E. providing consultative help (I-1)
- teachers were more opposed to the D.O.E. providing evaluation assistance (I-3)
- teachers felt the strongest about the D.O.E. providing help to districts in seeking community involvement (I-11)
- teachers were not as supportive as administrators in the D.O.E. providing management assistance (I-13)
- teachers were least supportive of the D.O.E. developing a student assessment program (I-16)
- teachers were very supportive of the D.O.E. designing and conducting in-service training (I-17)
- teachers did not express as great a need for an assessment of educational statutes (I-25)
- teachers were less supportive of the D.O.E. sponsoring statewide conferences (II-3)
- teachers had no opinion on expanded program audit functions of the D.O.E. (II-5)

- teachers and principals were supportive of regionalizing D.O.E. services (II-6)

- teachers felt most strongly that services should be coordinated through regional resource centers (II-7)

– teachers perspectives of problems in working with the D.O.E. were much different from other groups, many (12 to 19%) did not respond indicating they know very little about the department (Section III)

– teachers indicated a need for program administration guidelines from the D.O.E. (II-5)

- teachers have a great deal of difficulty knowing whom to contact for a specific purpose in the D.O.E. (III-7)

– teachers assigned greater importance to developing special education programs (IV-25)

D. People classified as "others" accounted for 3.4 percent of the respondents. The only areas in which their responses differed significantly from the three other groups was in Section III. Specifically "others" encountered more problems in

– calendar deadline conflicts (III-2)

– inconsistent responses from staff (III-4)

– reaching appropriate personnel (III-6)

– knowledge of legislative amendments and new laws (III-8)

This group had less problems in

– getting requests answered by the D.O.E. (III-3)

– knowing the guidelines (III-5) and

– knowing whom to contact (III-7)

SIZE OF SCHOOL DISTRICT

The responses were analyzed on the basis of school enrollment. The four categories of school size were:

1. Anchorage

2. 1000-9000

3. 400-999

4. 1-399

Respondents from Anchorage saw less importance than others on the D.O.E.

- providing program consultation (I-1)
- developing new programs (I-6)
- –providing technical assistance (I-7)
- developing an educational information system (I-9)
- developing a student assessment program (I-16)
- conducting in-service training (I-17)
- coordinating regional resource center network (I-19)
- developing better planning and evaluation capabilities in local districts (IV-18)

Anchorage and those schools with enrollments between one and nine thousand saw less importance than the smaller school on

- developing programs for native students (IV-4)
- expanding programs on career education (IV-4)
- developing individualized programs (IV-10)
- developing programs to meet student needs (IV-11)
- developing alternative approaches to organizing schools (IV-24)

GEOGRAPHICAL REGION

The seven categories of geographical area were:

1. South Central
2. Western
3. Northwest
4. Bristol Bay
5. Interior
6. Southeast
7. Aleutian Chain

Very few significant differences were noted in analyzing the data by region. The following general findings should be noted.

- Southeast educators saw more importance than others in the D.O.E. providing technical assistance to LEAS (I-7)
- South Central and Western educators perceived a greater need to investigate alternate means of funding schools (I-24)

- Interior educators did not support the D.O.E. sponsorship of workshops as strongly as others (II-2)

- Western, Northwest and Southeast expressed a greater interest in the D.O.E. developing career education programs (IV-4)

- Educators from Western, Northwest and Bristol Bay felt much stronger about the development of alternative approaches to school organization than South Central, Interior and Southeast.

- There is more interest in special education program expansion in South Central, Western and Northwest.

Because of the small number of responses from the Aleutian Chain they were not included in this discussion.

DOLLARS/AVERAGE DAILY MEMBERSHIP

The responses were also analyzed on the basis of dollars spent per average daily membership. The categories of Dollars/ADM were:

1. $1600-$1800
2. $1800-$2000
3. $2001-$2200
4. $2201-$2600
5. over $2600

The data were also analyzed by groups according to the amount of money spent/ADM. Very few significant differences were found.

Those spending $1600-1800/ADM saw less importance in the D.O.E.

- providing management assistance (I-13)

- developing student assessment program (I-16)

- developing better planning and evaluation capabilities in local districts (IV-18)

- exploring alternative forms of school organization (IV-22)

Those educators from districts spending over $2200/ADM saw a greater need for the D.O.E.

- offering in-service training (I-17)

- developing alternative approaches to school district organization (IV-24).

COMMENTS ABOUT COOPERATION AND PLANNING

Section V and Section VI invited comments about how the districts and the Department might work together more effectively and encouraged advice related to long range planning.

The most commonly expressed feelings have been grouped as though the respondents were speaking

To: The Department of Education

From: Alaska Educators

More than anything, we do not know who you are. You are a name. A place that gives us a teaching certificate. We are not sure what your function is. You pass out money and make decisions which affect us.

Some of us know a little bit about your work, and most of us are sure there are things you can do which would be of great help to us. Our in-service workshops are not working out very well. You can help us with these. You can provide practical "how to" workshops for us with specific demonstration activities.

We need you in person and on the phone (perhaps a hotline) and in workshops and with in-service training and at board meetings. We need to know who to call when expert help is needed (a yellow pages). We relate very well to those who have had practical educational experience and rather poorly to those of you peddling theory. Hire personnel capable of performing the tasks needed and we will be willing to work with them. Get the best people for the job.

We need information on promising programs in Alaska and elsewhere. You should send us a newsletter. A bulletin which describes legislation, title programs being funded, information on meetings and a form for discussing the issues. You can offer us information on materials - information and materials at all levels - administrator, teacher and student levels. We need information to help us make decisions - information on new ideas in teaching - new ways to handle old problems - and old ways to handle old problems. We need lots of materials - time is wasted trying to scrounge up information on subjects - information which you could readily provide.

Talent Bank is a very good idea. We need it to help us find those who can help. You can help put us in contact with those who have already learned the things we need to know.

Curriculum is of great concern to us. We feel the old standards need to be revised. The credit system of graduation is not working well. We need your help in curriculum design. We are worried about the fads and the changes that are allowing students to graduate without being able to read, write, spell, or do the things we feel are necessary for survival.

Evaluation and accountability are buzz words. We can take care of our evaluations, both staff and program, you can only assist us with how we might do it.

Certification is a sore point with us. In fact it makes us mad. Competency based testing should be started and mixed with the old system of college credits. Your structure is too rigid. Your rules overlap and are not clear. A teacher who can demonstrate proven ability with a grade level or subject area should be permitted to teach it. The old rules are not working. Proof of this appears with the trainee teachers coming from the universities. Please help us here.

The films we received from the old S.O.S. library are great. We need more. In fact a good regional library in Southeast, South Central - Fairbanks - bush areas. You could start this with the films we tell you we need. In fact these Regional Centers could offer many resources. They could disseminate new ideas, new curriculum, new programs. With a minimum operating base they could offer consultative, leadership and administrative services to us within our own geographic service area.

The bush schools need your help more than any other. You must give these teachers every trick in the book to allow these kids to compete with the city children. These bush schools exist, and problems must be solved for them. They especially need help developing secondary programs.

While we are not asking for state control, we do need more structure and guidance from you. Your guidelines are either non-existent or unclear. You even have inconsistencies between your various plans of service. One plan of service would be better. Be uniform in enforcement and stop the blackmail by some divisions (either do it the Department way or you can't get program approval). Instruct us without regulation.

We would like to be involved much more with legislation. The session you have with superintendents is helpful, but we would all like to have our input. We would like you to reach out and ask us for our feelings (like this questionnaire). Get us involved and tell us how we can help. Use the hotline (we suggested earlier) to give us access to legislative information.

Special education is also a sore point with us. You should spend less time tracking our dollars and criticizing our student selection procedures. Where we really need help is building programs. Help us here.

We have some concerns about the development of a criterion-referenced testing system. We were not involved or informed. The identification of statewide needs and priorities is your job, but it should not be based on student testing alone. What Alaska needs is a published set of educational goals that is revised periodically. All efforts of the Department of Education should address these goals. Local education agencies could then work within a framework of a coordinated statewide effort to achieve these goals.

Thank you for the opportunity to respond to this survey with our perceptions and ideas.

RECOMMENDATIONS

The Office of Planning and Research recommends that

- the results of this survey be used in setting directions for the State Board and the D.O.E.,
- a regular, colorful, readable type "newspaper" be developed for distribution to all educators,
- emphasis should be placed on a coordinated plan to disseminate information, promising practices and talent bank,
- there needs to be a revision of the teacher certification procedures,
- an open approach should be adopted for identifying and developing legislation,
- the D.O.E. should offer the leadership for planning and implementing "how to" workshops for teachers, principals and superintendents,
- the annual plan of service procedures should be received,
- the Regional Resource Center concept should be developed and combined with regional library and film services,
- from a management standpoint there should be a review of
  - requests made from LEA's
  - calendar deadline conflicts
  - responses made by D.O.E. staff
  - administrative guidelines
  - availability of D.O.E. staff
  - staff knowledge of legislation and school law,
- a yellow pages of D.O.E. services and personnel should be developed,
- the D.O.E. continue to investigate alternate means of funding schools,
- the D.O.E. encourage the development of special educations for the gifted.

D. O E USE ____ ____ ____ ____

Department of Education
Planning Survey

The purpose of this survey is to gather from local school personnel recommendations and suggestions concerning services to be provided by the Department of Education. Your response is most important in helping us determine future activities and organizational efforts.

Please return your completed questionnaire in the enclosed self-addressed envelope. Questions and correspondence regarding this survey may be directed to:

Robert Lehman
Office of Planning and Research
Department of Education
Pouch F
Juneau, Alaska 99811
Telephone - 465-2812

I. WHAT SERVICES SHOULD THE DEPARTMENT OF EDUCATION PROVIDE?

From your perspective and considering the needs of your school(s), indicate which services you feel should be provideo by the Department of Education.

1 = little importance to your school(s)

4 = great importance to your school(s)

	IMPORTANCE (little 1 2 3 4 great)
1. Provide program consultation.	1. ( ) ( ) ( ) ( )
2. Provide planning assistance to local districts and/or regional resource centers.	2. ( ) ( ) ( ) ( )
3. Provide evaluation assistance to local districts and/or regional resource centers.	3. ( ) ( ) ( ) ( )
4. Establish and maintain statewide goals for education.	4. ( ) ( ) ( ) ( )
5. Identify statewide needs and priorities.	5. ( ) ( ) ( ) ( )
6. Develop and field test appropriate new programs.	6. ( ) ( ) ( ) ( )
7. Provide technical assistance to help local agencies solve specific problems.	7. ( ) ( ) ( ) ( )
8. Identify and disseminate information about promising programs.	8. ( ) ( ) ( ) ( )
9. Develop and administer a statewide educational information system.	9. ( ) ( ) ( ) ( )
10. Research, evaluate and disseminate information about alternative educational programs and systems.	10. ( ) ( ) ( ) ( )
11. Seek greater parent and community participation at all levels of educational decision-making.	11. ( ) ( ) ( ) ( )
12. Involve local district/regional resource center personnel in program guideline development.	12. ( ) ( ) ( ) ( )
13. Provide administrative and management assistance to local districts and/or regional resource centers.	13. ( ) ( ) ( ) ( )
14. Provide grant application assistance to local districts and/or regional resource centers.	14. ( ) ( ) ( ) ( )
15. Provide leadership on the development of standards for school accreditation.	15. ( ) ( ) ( ) ( )
16. Develop a student assessment program based on criterion referenced testing.	16. ( ) ( ) ( ) ( )
17. Design and conduct in-service training programs for local district staffs.	17. ( ) ( ) ( ) ( )
18. Provide assistance to local districts in the design and implementation of staff evaluation programs.	18. ( ) ( ) ( ) ( )
19. Coordinate the development of a regional resource center network.	19. ( ) ( ) ( ) ( )
20. Provide for evaluation of district programs.	20. ( ) ( ) ( ) ( )
21. Develop specifications for the utilization of an educational satellite system.	21. ( ) ( ) ( ) ( )
22. Provide assistance to teacher training institutions in the design and development of competency- based training programs.	22. ( ) ( ) ( ) ( )
23. Provide media resource support to district programs.	23. ( ) ( ) ( ) ( )
24. Investigate alternate means of funding schools.	24. ( ) ( ) ( ) ( )
25. Provide assessment of educational statutes.	25. ( ) ( ) ( ) ( )
26. Other (please – specify) _____	26. ( ) ( ) ( ) ( )

_____

II. HOW SHOULD THE DEPARTMENT OF EDUCATION PROVIDE SERVICES?

How should consultative, leadership and administrative services be provided by the Department of Education?

	YES	NO	NO OPINION
1. Increased on-site visitation by the Department of Education staff.	1. ( )	( )	( )
2. Sponsorship or co-sponsorship of local and/or regional workshops, training sessions, meeting.	2. ( )	( )	( )
3. Sponsorship of statewide conferences.	3. ( )	( )	( )
4. Systematic formal communication between the Department and local districts.	4. ( )	( )	( )
5. Expanded program audit functions of the Department of Education.	5. ( )	( )	( )
6. Regionalization of the Department of Education's services.	6. ( )	( )	( )
7. Coordinate the delivery of services through regional resource centers.	7. ( )	( )	( )
8. More frequent informal communications between the Department and local districts.	8. ( )	( )	( )

III. WHAT PROBLEMS HAVE YOU HAD IN WORKING WITH THE DEPARTMENT OF EDUCATION?

From your perspective and considering the experiences of your school(s), indicate which problems you have encountered in working with the Department of Education. Apply a scale of 1 to 4:
1 = seldom a problem for your school(s)
4 = frequently a problem for your school(s)

	Seldom 1	2	3	frequently 4
1. Duplication or overlapping of requests and/or requirements (reports, inventories, enrollment, census, etc.)	( )	( )	( )	( )
2. Calendar deadline conflicts, insufficient lead time to comply with the Department's requests.	( )	( )	( )	( )
3. Specific requests for assistance are not answered by Department personnel.	( )	( )	( )	( )
4. Inconsistent responses from the Department of Education staff.	( )	( )	( )	( )
5. Absence of clear and current program administration guidelines from the Department of Education.	( )	( )	( )	( )
6. Difficulty in reaching appropriate personnel due to their travel, meetings, other commitments.	( )	( )	( )	( )
7. Insufficient knowledge of whom to contact for a specific purpose.	( )	( )	( )	( )
8. Insufficient knowledge of legislative amendments and new laws.	( )	( )	( )	( )
9. Other (please specify) _____	( )	( )	( )	( )

IV. WHAT AREAS SHOULD THE DEPARTMENT OF EDUCATION SUPPORT?

From your perspective and considering the needs of your school(s), indicate which areas you feel should receive the attention, energies and resources of the Department of Education over the next few years. Apply a scale of 1 to 4:

	IMPORTANCE little 1	2	3	great 4
1. Expanded development of programs which are more responsive to specific needs of native students (bilingual, cross-cultural).	( )	( )	( )	( )
2. Continued development of programs for identified areas of need.	( )	( )	( )	( )
3. Greater emphasis on the development of skill programs for continued learning (problem solving, creative thinking, adjusting to new information).	( )	( )	( )	( )
4. Expansion of programs for occupation awareness and preparation (career education at all levels, expanded vocational education and preparation).	( )	( )	( )	( )
5. Continued focus on programs of basic skills (reading, math, science, language arts, social studies)	( )	( )	( )	( )
6. Increased development of programs for better reading achievement at all grades.	( )	( )	( )	( )
7. Emphasis on the development of programs in human skills (social living, emotional growth, human relations, interpersonal process skills, personal values, adjustment to change).	( )	( )	( )	( )
8. Greater development of fine arts and humanities programs.	( )	( )	( )	( )
9. Increased emphasis of early childhood education programs.	( )	( )	( )	( )
10. Emphasis on the development of programs for optimal achievement of individual learners (nongraded levels, multi-ages grouping, individualized instruction, prescriptive teaching).	( )	( )	( )	( )
11. Development of a broader range of curricular programs ("more relevant" programs in tune with student and societal needs).	( )	( )	( )	( )
12. Development of a combined funding approach to educational programs (flexibility for developing programs in accordance with needs at both state and local levels).	( )	( )	( )	( )
13. Consolidation of services across all age levels based on developmental needs rather than grade level structures.	( )	( )	( )	( )
14. Planning for greater involvement of parents and the community in making decisions at local school levels.	( )	( )	( )	( )
15. Placement of greater emphasis on developing accountability models for all levels of education (needs assessment, comprehensive educational plans, development of goals and objectives, program development, program evaluation).	( )	( )	( )	( )
16. Closer work with districts in proposing lobbying for state legislation beneficial to education.	( )	( )	( )	( )
17. Expansion of efforts to provide continuous staff development activities for professional personnel at all levels (regional workshops, statewide conferences, task-force assistance).	( )	( )	( )	( )
18. Development of better planning and evaluation capabilities in local school districts. (Assistance in curriculum planning, project evaluation, staff evaluation).	( )	( )	( )	( )
19. Planning for ways to unite educational research with practice (development of an educational information system, identification of promising programs).	( )	( )	( )	( )
20. Expansion of statewide linkages and systems for inter-level communications (local/regional/state, institutions of higher education).	( )	( )	( )	( )
21. Revision of all curricular programs.	( )	( )	( )	( )
22. Exploration of alternatives forms of school organization (alternative schools, open school, year- round school, compulsory education performance contracting)	( )	( )	( )	( )

	IMPORTANCE little great
23. Examination of current requirements, practices and procedures for preparation and certification of school personnel and development of alternative approaches.	23. ( ) ( ) ( ) ( )
24. Development of alternative approaches and means to bring about effective organization of Alaska's school districts.	24. ( ) ( ) ( ) ( )
25. Increase development of programs on special education (educationally handicapped, educationally disadvantaged, gifted).	25. ( ) ( ) ( ) ( )
26. Other (please specify): _____ _____	26. ( ) ( ) ( ) ( )

V. Please indicate how you feel the Department of Education and your school(s) can better work together.

VI. Please add any additional comments which you feel are relevant to the long-range planning efforts of the Department of Education.

RESULTS OF DEPARTMENT OF EDUCATION PLANNING AND RESEARCH SURVEY

Office of Public Information and Publications
Department of Education

Marshall L. Lind
Commissioner of Education

Jay Hammond, Governor

AUGUST, 1976

Cover: Candace Pigott

STATE of ALASKA

MEMORANDUM

APPENDIX B.2

RESULTS OF USER INFORMATION NEEDS SURVEY

TO: Files

DATE : May 19, 1976

FROM: Bob Lehman

SUBJECT: Results of User Information Needs Survey

PROBLEM - Before information, talent or human resources can be disseminated to school staff it is necessary to know what types of information they desire. The purpose of this survey was to gain some indication of the types of information desired by Administrators and teachers in the State of Alaska.

PROCEDURE - Over one hundred statements representing the types of information one might use in selecting a new teaching method on materials was generated. These statements were refined and categorized into eight groups including: Method/Activities, Content, Cost, Student Behavior, Teacher Behavior, Evaluation, Facilities and Other.

An interview guide was developed and pilot tested on several Department of Education personnel and two members of the Juneau School District. It was also pilot tested on a graduate class at the University of Alaska in Juneau. Modifications in statements and directions were made on the basis of the pilot results.

Personnel interviews were held at the Federal Programs Workshops held in Anchorage and Juneau during February and March. Also teachers were interviewed at the Alaska NEA held in Anchorage in March. A total of twenty-four individuals were interviewed representing twenty-one of the thirty districts in Alaska.

METHODS/ACTIVITIES:	IMPORTANCE no 1	2	3	essential 4	5(NR
1. Knowing the skills required by teachers to use the method of materials.	0	4.2	41.7	50.0	4.2
2. Knowing all the parts of the teaching package.	8.3	12.5	25.0	54.2	0
3. Teaching method requires regular interaction between shcool and community.	4.2	25.0	33.3	33.3	4.2
4. Teaching method requires regular interaction between teachers.	0	16.7	29.2	54.2	0
5. Knowing the primary way in which instruction takes place.	0	12.5	12.5	75.0	0
6. Strategy designed to facilitate supplemental teacher input.	0	25.0	37.5	29.2	8.3
7. Students can proceed at their own pace.	0	4.2	41.7	54.2	0
8. Equipment needs to be checked out by the student.	16.7	33.3	37.5	12.5	0
9. Producers' recommendations of how the package should be used.	0	29.2	29.2	41.7	0
10. Amount of teacher time spent in replacing expendables.	4.2	29.2	50.0	16.7	0
11. Learning activities are specified.	0	4.2	25.0	66.7	4.2
12. Flexibility of the program in adapting to other school settings.	4.2	12.5	29.2	54.2	0
13. The instructional strategy matches the objectives of instruction.	0	12.5	8.3	75.0	4.2
14. Time it takes most students to successfully work through the program.	12.5	4.2	41.7	41.7	0

		IMPORTANCE				
		no			essential	
		1	2	3	4	5(N
30.	Knowing how the program promotes student interactions.	0	20.8	70.8	8.3	0
31.	Student needs to be a good reader to use the program.	16.7	12.5	20.8	50.0	0
32.	There is a consistency of student performance when used time and again.	4.2	16.7	33.3	45.8	0
33.	The specific instructional objectives of the program.	0	0	20.8	79.2	0
34.	Intellectual level the program is designed for.	8.3	0	33.3	58.3	0
35.	Program is directed toward a specific cultural group.	0	16.7	29.2	50.0	4.2
36.	Rationale for the stated goals and objectives.	0	20.8	29.2	50.0	0
TEACHER BEHAVIOR:						
37.	The amount of direction required by the teacher.	0	12.5	8.3	75.0	4.2
38.	Amount of teacher inservice time necessary for comptence in the use of the materials and methods.	0	8.3	12.5	75.0	4.2
39.	The attitudes of teachers who have used the materials or methods.	4.2	20.8	29.2	45.8	0
40.	The program frees the teacher for other instructional activities4.2	29.2	25.0	41.7	0	
41.	Knowledges and skills required of teachers.	0	8.7	21.7	69.6	0
42.	Program requires a particular kind of encounter between the teacher and the student.	8.3	8.3	41.7	41.7	0
43.	Amount of time the teacher spends getting instructional material ready.	0	8.3	33.3	58.3	0
44.	Time spent by teachers in direct student contact.	0	8.3	41.7	50.0	0

	IMPORTANCE no 1	2	3	essential 4	5(N
EVALUATION:					
45. The amount of time spent in student performance.	0	0	45.8	54.2	0
46. Student evaluation/feedback used for revision of the system.	0	4.2	33.3	62.5	0
47. Time students spend in self-evaluation.	0	25.0	66.7	8.3	0
48. Measurement techniques used to evaluate student progress.	0	12.5	33.3	50.0	4.2
49. Ill-desired effects on students from participating in the program.	0	12.5	29.2	58.3	0
50. Procedures used in the overall evaluation of the program.	4.2	4.2	37.5	54.2	0
FACILITIES:					
51. There is a teacher's guide available.	0	8.3	12.5	79.2	0
52. Facilities required to operate the program.	0	8.3	16.7	75.0	0
53. Problems involved in using the material	0	8.3	16.7	75.0	0
54. The amount of time required to repair or maintain equipment.	0	20.8	50.0	29.2	0
55. Knowing what equipment needs to b installed in order to use the program.	0	0	29.2	70.8	0
OTHER:					
56. Parents' reactions of students who are involved in the program.	0	4.2	41.8	54.2	0
57. Where the program can be obtained.	0	4.2	29.2	66.7	0
58. Community reaction to use of this particular program.	0	6.7	33.3	50.0	0
59. Knowing what student grouping pattern is required.	4.2	20.8	37.5	37.5	0

	IMPORTANCE				
	no 1	2	3	essential 4	5(NR
60. People other than teachers are needed to operate the program.	4.2	8.3	8.3	79.2	0
61. School administrators' attitudes toward the program.	4.2	12.5	29.2	54.2	0
62. The program is particularly adapted to certain types of institutions.	4.2	16.7	37.5	41.7	0
63. Knowing the dominant theory (theories) of learning that guided the development of the program.	4.2	12.5	54.2	25.0	4.2
64. Program requires regualr administrator-teacher interacitons.	4.2	20.8	16.7	54.2	4.2

DISCUSSION AND IMPLICATIONS FOR THE DISSEMINATION OF TEACHING METHODS AND MATERIALS

Because of the small number of respondents only those questions showing large differences between groups or responses indicating little importance or essential information will be pointed out.

METHODS/ACTIVITIES

In general most respondents felt that all of the types of information were quite important to know before selecting new curriculum materials or teaching method. Some items which do not appear to be highly important information are knowing:

- if teaching method requires interaction between school and community
- if the strategy is designed to facilitate supplemental teacher input
- if equipment needs to be checked out by the student
- the producer recommendations on how the the package should be used
- the amount of teacher time spent in replacing expendables
- the program teaches content ordinarily not readily taought by teachers

Items which seem to be essential information are knowing:

- the skills required by teachers to use the method statements
- all the parts of the teaching package
- if method requires regular interaction between teachers
- the primary method of instruction
- if students can proceed at their own rate
- what learning activities are included
- if program is flexible enough to adapt to other school settings
- if teaching method matches the instructional objectives
- the major concepts taught
- if the content is credible and relevant

COST

The item of most interest here is the "maintenance cost to support the program from year to year".

STUDENT BEHAVIOR

All items here were rated as being very important or essential. This is the one type of information that should be stressed in all program descriptions. (See list of statements under the results.)

TEACHER BEHAVIOR
Items not rated as being highly important or essential where knowing:

- the attitudes of teachers who had used the materials or methods
- if the program frees the teacher for other instructional activities

All other items were rated quite highly and should be considered in describing or packaging new materials or methods for distribution.

EVALUATION
All audiences are interested in knowing how students performed in the program. The only item not considered important is knowing the "time students spend in self-evaluation".

FACILITIES
All items here were rated important or essential except for knowing the "amount of time required to repair or maintain equipment.

OTHER
Three items in this group showed a diversity of opinions. They were knowing:

- what student grouping pattern is required
- if the program is adapted to certain types of institutions
- if the program requires regular administrator-teacher interaction.

The respondents did not feel strongly about knowing the dominant theory of learning that guided the development of the program.

CONCLUSION
Any descriptions of new materials or teaching strategies should stress:

- student behaviors
- teacher behaviors
- prior student results
- and facilities required.